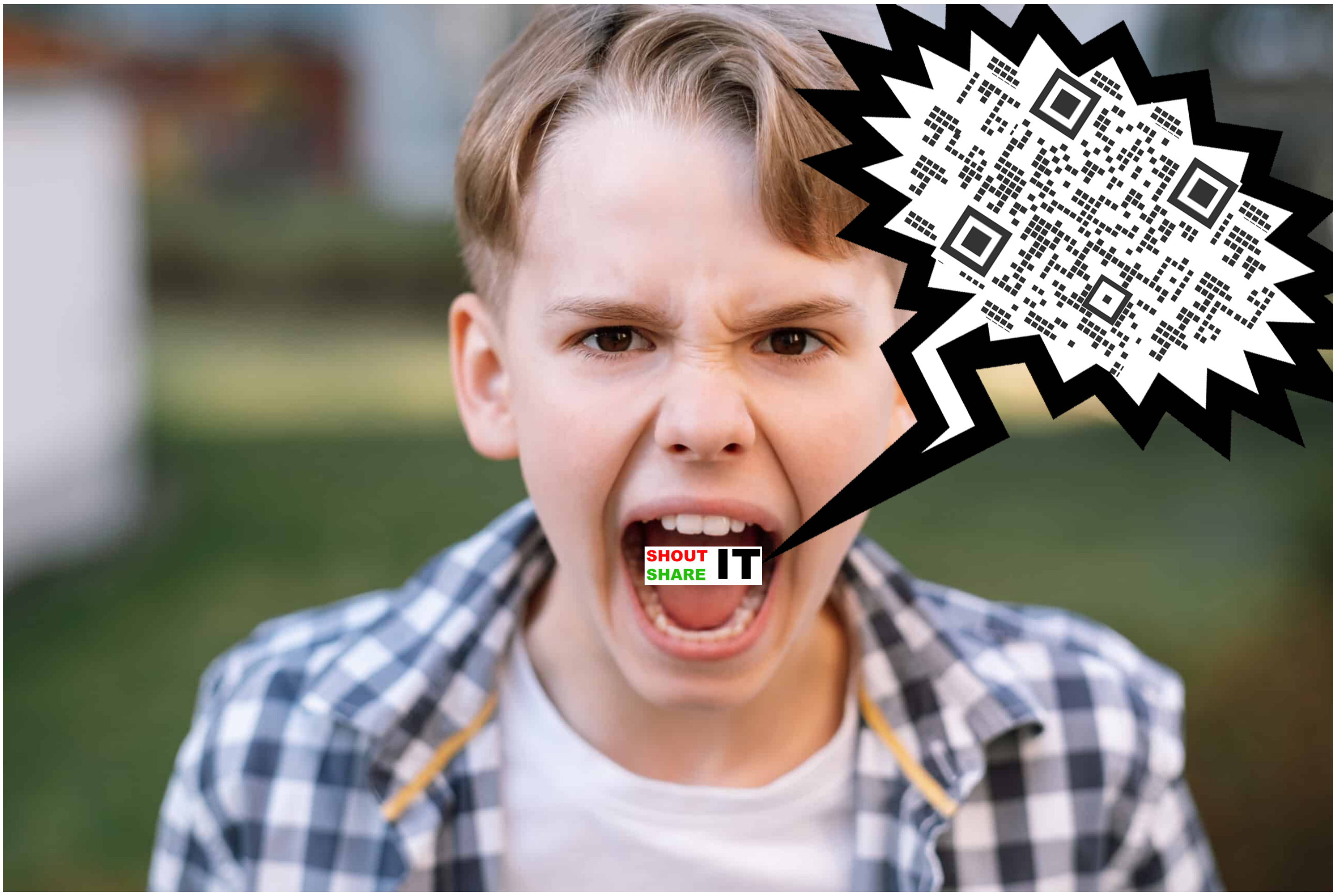
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EDITED BY

JOHN J. YEALLAND

Volume 85

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BRITISH ORNTHOLOGISTS' CLUB

EDITED BY

JOHN J. YEALLAND

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PREFACE

THE YEAR 1963 has seen the publication of an Index of the *Bulletins* for the period from 1950–1959 inclusive, a period during which no annual Indices were produced. A further notice concerning the 10-year Index is circulated with this for Volume 83.

A total of 281 members, associates, members of the B.O.U. and guests have attended the meetings held during the year and, as usual, they have enjoyed meeting together and being addressed on a variety of ornithological matters.

Once again we are extremely grateful to Mrs. B. P. Hall for so efficiently carrying out the compilation of the 1963 Index and our gratitude is also due to all who have sustained the *Bulletin* with their communications.

To the Caxton and Holmesdale Press, printers of the *Bulletin*, and in particular to Mr. K. E. Wiltsher, the Manager, the Editor expresses his warm appreciation.

J. J. YEALLAND.

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Chaytor, R. G., 16 Highbury, Newcastle-on-Tyne, 2.
Cuthbertson, G. B., The Bath Club, 41 Brook Street, London, W.1.
Elgood, J. H., Dept. of Zoology, Univ. of Ibadan, Nigeria.
Goodwin, Miss V., Little Orchard, Rowe Holt, Wimborne, Dorset.
Greenwood, J. J. D., St. Catherine's College, Oxford.
Hancock, J. A., Coniston, Orchehill Avenue, Gerrards Cross, Bucks.
Hemple, M. P. L., Room 30, Galle Face Hotel, Colombo, Ceylon.
Markus, M. B., 206 Lunnon Road, Hillcrest, Pretoria, South Africa.
Moss, R., 128 King's Hall Road, Beckenham, Kent.
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Peal, R. E. F., Garden Flat, 13 Belsize Park, N.W.3.
Tree, A. J., P.O. Box 667, Kitwe, Northern Rhodesia.
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Watts, D. E., Kingsmead School, Hoylake, Cheshire.
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Vine, A. E.
Woodward, I. D. W.

Died

We regret to record that on 30th October, 1963 David Seth-Smith died at his home in Guildford at the age of 88. He was a Life Member, joining the Club in 1902. From 1915 until 1920 he was Editor of the *Bulletin*, Vice-Chairman in 1936–1937 and Chairman from 1943 until 1946.

During his long association with the Club he did much to further its interests and he will be remembered with affection by his many friends.

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BULLETIN
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The six hundred and third meeting of the Club was held at the Rembrandt Hotel, London, on 18th December, 1962.

Chairman: MAJOR-GENERAL C. B. WAINWRIGHT

Members present, 34; Guests, 13; Guest of the Club, Professor M. F. M. Micklejohn; Total, 48.

Professor Micklejohn organised an ''Ornithological Quiz'' in which the team of Mr. Derek Goodwin, Mr. Colin Harrison and Mr. Peter Tate defeated first that of the Chairman, Captain Charles Pitman and Mrs. Rosemary Upton and then Mrs. Diana Bradley, Miss Elizabeth Forster and Mr. Philip Hollam.

A most entertaining evening was concluded with an account of Professor Micklejohn's recent researches into the Hoodwink.

Verreaux's Eagle in Israel

by HAIM HOVEL

Received on 12th April, 1962

The range of Verreaux's Eagle *Aquila verreauxi* Lesson lies in northeast and southern Africa. Records of the species outside its regular distribution are rare and therefore of considerable interest.

Hartert mentions a specimen collected in Palestine by Schmitz.

The present note relates to an example seen by me on 19th December, 1961 at about noon soaring above the Wadi Dalam not far from the Lebanese frontier, where it was doubtless preying upon Rock Hyrax, *Procavia*.

In the field the bird appeared as a large black eagle, and its brilliant white back and rump were clearly seen as it turned in the sun; its bright yellow cere and feet were also noted. The white on the primaries was also apparent as it flew over: a good comparison of size was afforded as at the time four Griffon Vultures, *Gyps fulvus* (Hablitzl) were also in the air.

Reference:
Hartert, E. 1912–1921. *Die Vögel der Paläarkt. Fauna*, II, 1108–1109.

A new race of *Anthoscopus caroli* (Sharpe) from the Zambesi Valley

by Michael P. Stuart Irwin

Received 24th April, 1962

Anthoscopus caroli rankinei, subsp. nov.

Type: ♀ adult. South bank of the Zambesi River, opposite Feira; Southern Rhodesia, on the border with Portuguese East Africa at approximately 15° 40′ S., 30° 25′ E. Altitude 1,350 ft. Collected by R. W. Rankine, 23rd September, 1959. In the National Museum of Southern Rhodesia. Collector's No. F.39. National Museum Registration No. 40884.

Description: Differs from *A. c. caroli* (Sharpe). *A. c. winterbottomi* White and *A. c. robertsi* Haagner, all of which have a distinctive olive wash on the mantle, in being entirely a dark slate-grey above, with a whitish, not buff frons; sides of face and ear-coverts also whitish, not buffy. The grey on the mantle is even greyer than in *A. c. sylviella* Reichenow and very considerably greyer than *A. musculus* (Hartlaub), to which it bears some superficial resemblance, especially on the under parts by being off-white, not tinged with buff; the chin, throat, breast and upper half of the abdomen being especially pale. The buffy colour on the abdomen and flanks is more restricted and pinkish in tone, though closest to *A. c. caroli*, showing little resemblance to *A. c. robertsi* which is a pale yellowish-buff, but approaching that form closely in the general paleness of the throat, chest and upper abdomen, though *A. c. robertsi* tends to have the under parts more sandy. The most striking feature of this new race is in the slate-grey of the back, though in the pallid frons, ear-coverts and in the under parts, it does not really match any of the geographically nearest populations.

Measurements of the type: Wing (flattened) 49.5; tail 29; culmen (to base of skull) 9; tarsus, 12.5 mm.

Material examined: The type and one other specimen; an adult ♂, minus the bill, obtained in the lower Mazoe valley, Southern Rhodesia, by R. H. N. Smithers as detailed below. This specimen agrees with the type in all respects and is without doubt referable to this new form. Despite the existence of only two specimens, I have no hesitation in describing this race as new, as it differs so obviously from all the neighbouring populations that show a great amount of stability in respect of the mantle colour which never lacks the olive wash, and thus contrasting with this new grey-backed form. This second specimen measures: wing 52; tail 27 mm.

Range: At present known only from the type locality and from the Mkota Native Reserve on the lower reaches of the Mazoe River within Southern Rhodesia at 1,200 ft. adjacent to the Portuguese East African boundary at 16° 43′ S., 32° 40′ E. It would seem probable that this new form is restricted to a comparatively narrow section of the hot, dry, low-lying Zambesi valley, largely below 2,500 ft. from the region of about 30° E. Elsewhere on the plateaux on either side of the valley and in lowland coastal Portuguese Territory, it is replaced by olive-backed forms.

Remarks: The discovery of such an apparently distinctive race of this widespread and generally distributed species in this narrowly circumscribed region was unexpected. Previously the species was thought to be quite absent from the dry low-lying mopane tree country of the Zambesi and its main tributary valleys east from about the Victoria Falls gorges and the lowlands of Portuguese East Africa where *A. c. robertsi* appears. It would seem to be quite absent from the Kariba Lake basin and eastwards of Chirundu until *A. c. rankinei* reappears near the Portuguese border. By contrast elsewhere, the olive-backed group of forms are widespread in the rather similar hot low-lying country throughout the Limpopo River drainage within Southern Rhodesia, and occur also at the Sabi-Lundi River junction at 600 ft., and undoubtedly elsewhere in the Sabi valley as well. On the other hand further north, along the Zambesi-Luangwa drainages, these forms become restricted to the surrounding plateaux above about 3,000 ft., where they are virtually specific to the *Brachystegia* formations, avoiding the hot, low-lying country completely, though common until the lips of the escarpments are reached. C. W. Benson *in litt.* further confirms the absence of the species from anywhere within the Luangwa valley proper, though it now seems certain that *A. c. rankinei* must be found in the region of the Luangwa-Zambesi confluence.

Discussion: The type of *A. c. rankinei* is without ecological data, but the Mkota specimen was taken in a riparian acacia association, and this is the type of habitat in which it seems most likely to occur generally, as virgin mopane is largely unsuitable. Furthermore within the Limpopo valley the species is very largely associated with acacia and *Commiphora*, etc., and other dry-country types of small-leaved trees, and where similar associations occur in the Zambesi valley, especially on alluvial ground, it is most likely to be found.

In view of this new form's probable ecological specialisation, together with its circumscribed range and the fact that the plateau populations are restricted to *Brachystegia*, may cause a reduction in gene flow between the two population groups. Otherwise, within such a restricted area, the valley populations would tend to become swamped. On the other hand, strikingly different looking races of this species are known to intergrade over short distances, as happens between *A. c. winterbottomi* and *A. c. rhodesiae* Sclater in Northern Rhodesia. But here the differences can be correlated with an increase in precipitation, without at the same time any major ecological change. A similar type of thing happens in East Africa in the case of *A. c. taruensis* van Someren and *A. c. sylviella*, both of which differ markedly from each other, but seem, nevertheless, closely related and occur very near to one another geographically, though apparently they differ ecologically. Thus *A. c. taruensis* ranges southwards from about the Tana River in the coastal savannah-forest mosaic, but in Tanganyika penetrates inland up some of the major river valleys such as the Pangani and Ruaha where it comes into close geographical proximity to the very different looking *A. c. sylviella*, which is largely, if not wholly, a highland form and in the south of its range apparently restricted to *Brachystegia* woodland. Dr. D. W. Snow *MS* revision and *in litt.*, gives *A. sylviella* specific rank on the basis of its distinctive colour and the fact that it approaches *A. c. taruensis* so closely, in eastern Tanganyika. But it would seem best at present to retain *A. sylviella* as a race of the *caroli* group, as it occupies rather a central position among several other rather clear-cut races. The distinctions here, as elsewhere, merely tend to accentuate the differences between two forms that have become separated ecologically in precisely the same way that *A. c. rankinei* appears to have become isolated from the surrounding populations.

It is perhaps worth mentioning that two recently collected specimens of *A. caroli* from near the top of the Zambesi Escarpment between 2,500–3,000 ft. in the Sipolilo District of Mashonaland, are still quite typical of the olive toned populations of *A. c. caroli*. These birds comprise a ♂♀ from the Umsengedzi River Gorge at approximately 16° 20′ S., 31° 02′ E. They further agree with another recent ♂ from Zana Farm at the northern end of the Umvukwe Range of hills at 16° 37′ S., 31° 04′ E. at an altitude of 4,000 ft. Thus in this sector, the ranges of *A. c. caroli* and *A. c. rankinei* are shown to approach each other to within a distance of some 70 miles and no doubt to the westward along the plateau on the escarpment, the gap will eventually be still further narrowed.

Geographical variation in the southern African populations of the Dusky Flycatcher *Muscicapa adusta* (Boie)

by Walter J. Lawson

Received 7th May, 1962

The Dusky Flycatcher *Muscicapa adusta* is restricted in southern Africa to the moister southern and eastern regions, extending from the southern Cape Province, Natal, Zululand, Swaziland and the eastern and north-eastern Transvaal, Moçambique, and the eastern regions of Southern Rhodesia to Northern Rhodesia and Angola northwards.

Within southern African subcontinental limits two races are currently recognised in the standard literature, these being *M. a. adusta* (Boie): Knysna, Cape Province, with a stated range of the southern part of the Cape Province to Natal and north to the eastern Transvaal, southern

Southern Rhodesia and southern Moçambique, and *M. a. subadusta* (Shelley): Nyika Plateau, Nyasaland, which ranges from Southern Rhodesia, Northern Rhodesia west to the Katanga district of the Congo, Angola and Nyasaland.

As a result of a reassessment of the populations of this small flycatcher in southern Africa conducted at the Durban Museum, it became apparent that a further subspecific taxon requires to be recognised in this area. Topotypical nominate *M. adusta* has heavy brown streaks on the lower throat and breast which have a buffy-olive suffusion, the flanks also being buffy, and on the remainder of the underside the white is not a clear white, but has a tinge of buff. The upper-parts are a deep brown. This form ranges from the southern Cape Province to the eastern Cape Province, in which areas it breeds, and in winter it moves north to Natal, Zululand, southern Moçambique, Swaziland, and to the extreme south of Southern Rhodesia (Sabi/Lundi junction).

The resident populations of Natal, Zululand, the lowlands of Swaziland and eastern Transvaal differ from the nominate race of the Cape, as now defined, in having the streaks of the lower throat and breast more clearly defined and in lacking the buffy-olive suffusion there and on the flanks. The streaks of the chest are grey, not brown, and the white of the abdomen is clear with no tinge of buff. The upper parts are paler than in the nominate race and have an olive tinge to the grey. It also averages smaller in size than *M. a. adusta*. For the populations of this flycatcher resident in Natal, Zululand to the north-eastern Transvaal, the name *Muscicapa fuscula* Sundevall, 1850, is available. *M. fuscula* was based on specimens collected by Wahlberg in ''Caffraria'', which in this instance must refer to Natal as this species does not occur in the western Transvaal, Sundevall's ''Caffraria superiore''. I therefore fix the type-locality of *M. a. fuscula* as ''Durban, Natal'', in which general area Wahlberg operated extensively in the early 1840's

M. a. subadusta is paler and greyer on the upper-parts than either of the preceding forms, with the streaking on the chest somewhat indistinct and grey in coloration. It is considerably smaller than *M. a. adusta* and *M. a. fuscula*.

The Dusky Flycatcher does not appear to be a breeding resident in southern Moçambique, only occurring there in winter, the wintering population in southern Moçambique being drawn from the two southern taxa. Dr. Winterbottom informs me that Mrs. M. K. Rowan of the Percy FitzPatrick Institute of African Ornithology, Rondebosch, has for some years suspected that the southern Cape populations of the Dusky Flycatcher leave that area in winter. This observation is largely confirmed by the fact that the darker coloured birds of the southern and eastern Cape are only to be found north of the limits defined here as their breeding range in winter. A very similar situation occurs in the Paradise Flycatcher *Terpsiphone viridis granti*, in which species the southern and eastern Cape populations migrate north in winter, the populations from Natal and Zululand not moving to the same extent.

The subspecies of the Dusky Flycatcher occurring in southern Africa are therefore:

Muscicapa adusta adusta (Boie)
Butalis adusta Boie, *Isis*, 1828, col. 318: Knysna, Cape Province.

Characterized by having heavy buffy-olive streaks on the lower throat and breast, the white of the abdomen tinged with buff, and not a clear white, the upper parts a deep brown, and in being larger in size than either of the following taxa.

Measurements: 10 ♂♂ wing 66.5–72.0 (68.9), tail 53.0–58.0 (55.1), culmen 14.0–19.0 (15.2); 10 ♀♀ wing 65.0–68.0 (66.5), tail 50.5–55.5 (52.7), culmen 13.5–15.5 (14.5) mm.

Material: 52 [southern Cape 22, eastern Cape Province 15 (wintering), Natal 6 (wintering), eastern Transvaal 5 (wintering), Swaziland 1 (wintering), southern Moçambique 2 (wintering), and southern Southern Rhodesia (Sabi/Lundi junction) 1 (wintering)].

Range: From the south-western Cape Province, eastwards through the southern Cape Province to just north of Port Elizabeth. In winter, however, this form leaves its breeding grounds and migrates north and is then to be found in the eastern Cape Province, Natal, Zululand, Swaziland, eastern Transvaal, extreme southern Southern Rhodesia and southern Moçambique.

Muscicapa adusta fuscula Sundevall
Muscicapa fuscula Sundevall, *Oefv. Ak. Förhandl.*, 1850, 105: Durban, Natal (see discussion above).

Differs from the nominate race in having the streaks on the lower throat and breast grey, not buffy-olive, and more clearly defined, underparts a much clearer white, not tinged with buff, the breast and flanks without a buffy suffusion. On the upper parts lighter and greyer than in the nominate race, often tinged with olive. Averaging smaller in size.

Measurements: 10 ♂♂ wing 67.0–70.0 (68.1), tail 52.0–56.0 (53.6), culmen 13.5–15.0 (14.2); 10 ♀♀ wing 65.0–68.0 (66.6), tail 51.0–54.0 (52.8), culmen 14.0–14.5 (14.1) mm.

Material: 60 [eastern Cape Province 27, Natal 21, Swaziland 1, eastern Transvaal 9, Moçambique 2 (wintering)].

Range: The eastern Cape Province north of the range of *M. a. adusta*, through Natal, Zululand, the eastern lowlands of Swaziland, and the eastern Transvaal. In southern Moçambique in winter only.

Muscicapa adusta subadusta (Shelley)
Alseonax subadusta Shelley, *Ibis*, 1897, p. 452: Nyika Plateau, Nyasaland.

Differs from either of the foregoing races by having the grey streaks on the lower throat and breast indistinct and the upper parts a lighter grey than in either of the two preceding races with no olive or buffy suffusion. Also smaller in size than the two southern races, especially as regards the length of the tail and culmen.

Measurements: 10♂♂ wing 66.0–70.0 (67.3), tail 48.0–51.0 (49.3), culmen 12.5–14.0 (13.3); 10 ♀♀ wing 63.0–67.0 (64.8), tail 45.0–51.0 (47.7), culmen 13.0–14.0 (13.5) mm.

Material: 56 (Southern Rhodesia 25, Northern Rhodesia 20, Nyasaland 5, northern Moçambique 5, Angola 1).

Range: Southern Rhodesia, Northern Rhodesia, Angola, south-eastern Congo, Nyasaland and northern Moçambique.

For the loan of additional material I am indebted to the Directrs ofo the following Museums: South African Museum, Cape Town (through Dr. J. M. Winterbottom), Transvaal Museum, Pretoria (through Mr. O. P. M. Prozesky), East London Museum and the National Museum of Southern Rhodesia, Bulawayo (through Mr. M. P. Stuart Irwin). I am also indebted to Dr. J. M. Winterbottonm for kindly furnishing me with information regarding Sundevall's *Muscicapa fuscula*, and to Mr. P. A. Clancey, Director of the Durban Museum, for much valuable assistance during the course of this study.

The races of the Flaming Sunbird (*Aethopyga flagrans*)

by KENNETH C. PARKES

Received 30th May, 1962

The Flaming Sunbird (*Aethopyga flagrans*) is an endemic Philippine species, one of the most attractive members of a generally highly coloured genus of sunbirds. I have examined 70 specimens of this species, representing the combined material in Carnegie Museum, American Museum of Natural History, U.S. National Museum, and Peabody Museum of Yale University. I am indebted to the authorities of the latter three institutions for permission to use their specimens.

Study of this series shows that a stepped cline of increasing redness exists within the Philippines from north to south. Two subspecies are currently recognized: "*A. f. flagrans* (Luzon, Catanduanes), mantle deep olive yellow tinged with orange on the upper back and shoulders; *A. f. guimarensis* [error for *guimarasensis*] (Negros, Panay, Guimaras), mantle blood red." (Delacour and Mayr, *Birds of the Philippines*, 1946, p. 231). The geographic variation in this species warrants recognition of four rather than two races. In most subdivisions of clines for nomenclatorial purposes the end-points receive the earliest names, and later authors may seek to apply names to additional transitional stages. In the case of *Aethopyga flagrans*, however, the terminal populations are the nameless ones.

Rand (1951, *Fieldiana:* Zoology, 31: 588) considered 1 Guimaras, 2 Panay and 3 Negros males to "agree fairly well among themselves," and called them all *guimarasensis*. Examination of a somewhat larger series from these islands indicates that Negros males are quite recognizably distinct from males from Guimaras and Panay; females rather less distinctive. The Negros race may be known as

Aethopyga flagrans daphoenonota, subsp. nov.

Type: American Museum of Natural History no. 488,886, adult ♂, collected at Luzuriaga (4,500′ elevation), Cuernos de Negros, Negros Oriental Province, Philippines, 22nd December, 1952, by D. S. Rabor (collector's no. 4038).

Characters: Males similar to *A. f. guimarasensis* Steere (type locality Guimaras), but with blood red of mantle extending farther posteriorly; posterior portion of back, wing-coverts, and edges of remiges washed with deep orange rather than greenish; orange-red of mid-abdomen slightly richer and more concentrated, less diffuse. As for females, the differences between Negros and Panay specimens described by Rand (*op. cit.:* 589) are, as he postulated, due to relative wear, as shown by comparison of freshly moulted specimens. Negros females are brighter above, more greenish (less grey) on the rump, and have more of an orange wash on edges of remiges and wing-coverts than females of *guimarasensis*. The chin and upper throat in females of *daphoenonota* are clearer, more whitish-grey, and there is a tendency toward concentration of the orange-yellow of the venter, parallelling the condition in Negros males.

This sunbird can be added to the growing list of species in which geographic variation within the large island of Luzon has been demonstrated. The type locality of *Aethopyga flagrans* Oustalet is "Laguna", presumably referring to the vicinity of Laguna de Baie in south-central Luzon. The original description clearly indicates the orange wash on the dorsum typical of the southern population. The only other available name appears to be *Cinnyris excellens* Grant, which was based on specimens from Albay Province in southern Luzon and is therefore a synonym of *flagrans*. The population of northern Luzon is thus nameless, and may be called

Aethopyga flagrans decolor, subsp. nov.

Type: American Museum of Natural History no. 688,081, adult ♂, collected at Cape Engaño, north-easternmost Luzon, Philippines, 19th April, 1895, by J. Whitehead.

Characters: Similar to nominate *flagrans* from southern Luzon, but adults of both sexes olive-yellow above, lacking almost completely the orange dorsal wash typical of that race; orange of breast stripe and abdominal patch of males duller and less reddish; adult females greyer, less greenish on crown and throat. Juveniles cannot be distinguished.

Specimens examined: A. f. guimarasensis—Guimaras, 2; Panay, 7. *A. f. daphoenonota*—Negros, 10. *A. f. flagrans*—(all Luzon) Laguna Prov., 34; Sorsogon Prov., 5; Albay Prov., 2; Cavite Prov., 1; Tayabas Prov., 1. Catanduanes specimens, not examined; presumably belong here *A. f. decolor*—(all Luzon) Cagayan Prov., 5; Ilocos Norte Prov., 3.

The breeding of the Great Spotted Cuckoo *Clamator glandarius* L. in Iraq and a note on the Iraq eggs of the Kashmir Magpie *Pica pica bactriana* Bp.

by CHARLES R. S. PITMAN

Received 13th March, 1962

I

In the *Survey of Iraq Fauna*, 1915–1919[1] and *Jour. Bom. Nat. Hist. Soc.* ([2]: p. 298), with reference to *Clamator glandarius*, it is recorded "Weigold met with several pairs at Urfa* in April and thought they would certainly nest in the nests of *Corvus cornix.*" Also, "Woosnam obtained one at Bund-i-Kir on the Karun on 6th March and Zarudny includes it as a passage migrant. It breeds in the oak woods of S.W. Persia and it is curious that no one came across it in our area." During March and in May 1961, Mr. S. Marchant, at Baghdad, collected for me some eggs of the local magpie, *Pica pica bactriana* Bp., which are now in the National Collection at the British Museum (Natural History). Their data are:— 23rd March 1961, two infertile eggs taken, 33.2 x 22.4 and 33.0 x 22.4 mm., from a set of seven eggs, five of which hatched 21st–23rd March. The first egg was laid on 25th February. The eggs are smooth with slight gloss, pale greenish-blue, streakily marked all over, fairly thickly, with light and pale dull brown on underlying pale grey and pale ashy; there are concentrations of both markings at the large end. The nest was at the top of a Euphrates poplar in a thicket and about 300 cm. above the ground. Another nest was found with two eggs on 28th March, and when examined on 19th May was deserted and contained six eggs. Five (one of which was broken) were infertile and in the sixth there was a well developed embryo. They were smooth, with some gloss; pale greenish-blue, and more discretely marked than the previously described two; markings more rounded and not so streaky; brown and dull brown on underlying pale grey and ashy; there is a concentration of markings in each egg at the top of the large end. The measurements of these six eggs vary from 29.1–31.8 x 21.6–22.4 mm., and average 31.6 x 22.25 mm. From their small size one would expect *bactriana* to be a small race of *Pica pica*, which, however, it is not, as *bactriana* is considerably larger; yet the range of 100 eggs of typical *Pica pica*, according to *The Handbook of British Birds*, 1938, is 27.7–39.4 x 22.8–28 mm., and the average 34.1 x 24.2 mm. But Stuart-Baker ([4]: p. 38) gives 35.7 x 24.4 as the average measurements of *P. p. bactriana* eggs in India. If Marchant's markedly small six eggs are a fair sample of the eggs of the Iraq Magpie, it will be worth re-examining the three skins—identified as *P. p. bactriana*—now with the Bombay Natural History Society, which were collected by members of the Mesopotamia Expeditionary Force. In 1918, when I was on the Tigris, the magpie was not found downstream of Baghdad; on the Euphrates, it did not occur below Hilla. In 1917, I found it nesting at Feluja (on the Euphrates, some 40 miles north-west of Baghdad) on 19th March, and on 28th April young in the nest were found there. At Museyib, on the Euphrates, just above the Hindia Barrage, in the same year, I noted that the magpie was one of the commonest garden birds and many juveniles were seen in June. It would seem, therefore, that March is the month during which most magpie eggs are laid. I asked Marchant whether there was a possibility of the Great Spotted Cuckoo victimizing the magpie at Baghdad. He replied *in litt.* "I should doubt whether *Clamator glandarius* nests this far south in Iraq. This cuckoo is pretty scarce on passage and though I saw one rather late this year (1961), about the end of March, I have never had any idea that they stay to nest in central Iraq. Yet it is remarkable that the local magpies are thrown into a frenzy by their mere presence." It seemed to me that if the appearance of a Great Spotted Cuckoo, at a time when the magpies are nesting, could have such a disturbing effect on them, then there is the likelihood that sometimes a cuckoo breeds at Baghdad. I urged Marchant to make further enquiries, with the result *in litt.* (22nd February 1962) "I was astonished to see a *Clamator glandarius* at Kirkuk (c. 150 miles north-east of Baghdad) on 10th February, a remarkably early date I believe." Further, a reliable observer at Kirkuk informed him that during the summer in 1961 he had seen magpies feeding *Clamator glandarius.* Moore and Boswell ([3]: pp. 121–122) record a magpie's nest at Mosul (on the Tigris, some 230 miles north of Baghdad), on 19th April 1945 which contained *two* sorts of eggs, and a pair of Great Spotted Cuckoos were seen near by. On 8th April 1945, also at Mosul, a magpie was seen being chased by a Great Spotted Cuckoo. Marchant writes "it is a fair guess that *C. glandarius* breeds in Iraq from Kirkuk northwards, but in my own experience (he has for several years been based on Baghdad) would say that they do not do so as far south as Baghdad. Yet, there is evidence that *Pica* has increased enormously in the last 15 years in central Iraq and perhaps *Clamator* will be following them. *Pica* is already (22nd February) making new nests, but I have seen no *Clamator* at Baghdad." Writing further on 28th March 1962, Marchant is dubious that he can have overlooked *C. glandarius* at Baghdad, for while at Kirkuk on 17th–19th March he came across at least two pairs of this cuckoo which were "very noisy and entirely conspicuous." None has been observed (or heard) at Baghdad during the 1962 spring, although some 15 *Pica* nests in all stages from ready-for-eggs to young two weeks old have been located. Presumably the remarkable increase in mapgies in central Iraq and their ever-growing southerly thrust is due to more favourable environmental conditions resulting from the widespread extension of cultivation. Chapman and McGeoch's sight record ([5]: p. 586) of a single bird at Habbaniya (43° 34′ E.: 33° 22′ N.; north-west of Baghdad, and west of the Euphrates) on 28th June 1953 is significant. I am greatly indebted to Mr. S. Marchant for the trouble he has taken to obtain this interesting information, as well as the *Pica* eggs. In my own experience in East Africa I have noticed that breeding cuckoos do not necessarily advertise their presence, they can be both secretive and silent; and Mr. Myles North, (*in litt.*) who found *C. glandarius* eggs in Somalia (in the nests of *Corvus corax edithae* Phill.) wrote "Nor did I ever see *glandarius* here."

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* Urfa is in eastern Turkey and east of the Euphrates.

Since the above notes were written a further sixteen *Pica pica* eggs have been received from Marchant, which were collected in 1962. In size they range from 29.1–36.5 x 21.2–25.0 mm. and average 33.45 x 23.1 mm. The total of twenty-two eggs which have now been received average approximately 33.0 x 22.9 mm., markedly larger than the previously discussed six which average 31.6 x 22.25 mm., though they still average smaller than those of typical *Pica pica* and are much smaller than the average of *P. p. bactriana* eggs taken in India.

These sixteen eggs are from six nests (2/7, 3/6, 1/5) which contained a total of thirty-seven eggs. All the eggs taken were either infertile or deserted; and first eggs were laid respectively on 15th, 16th, 18th, 19th, 20th and 24th March. A few are unusually elongate and narrow, for instance 36.3 x 22.3 mm. In coloration and markings the majority are typical *Pica pica* eggs and, as is often the case in corvine eggs, one has a concentration of markings at the narrow end. Several eggs are so thickly marked as to appear almost brownish. Three eggs (infertile) *ex* c/6 are somewhat unusual and of a pale blue ground, curiously marked with large pale brown spots or blotches, some elongate, on similar and even larger pale grey markings all over. Major W. M. Congreve who has examined these three eggs comments "not a very common type of marking".

One c/6, all infertile, presents a problem. Four eggs are typically marked; a fifth is more handsome with rather discrete and not over numerous bright brown markings on underlying pale grey, mainly at larger end and with a dark cap. The sixth egg is rather stumpy and squat and measures 29.1 x 21.8mm.—but in Marchant's previous sending, one typically marked egg measures 29.1 x 21.6 mm.—and is appreciably the smallest of the sixteen. Its pale brownish coloration all over, streakily marked with pale brown on light violet-grey, with a fairly thick brownish cap on underlying dense violet-grey, is unlike any of the others. Although I have never seen an egg of *Clamator glandarius* quite like this, the disparity in its size and colour makes it strangely out of place in this set, but Congreve agrees that it cannot be attributed to the Great Spotted Cuckoo. Marchant (*in litt.*) also informs me that in 1962, at Kirkuk, a nest of *Pica pica* which held five eggs on 24th March, finally produced at least two young *Clamator glandarius* "which were observed daily by Mr. and Mrs. Kitchen".

One of these young cuckoos, almost ready to fly and which was handled, was noted already to have full adult plumage.

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A variety of the European Green-winged Teal

by James M. Harrison

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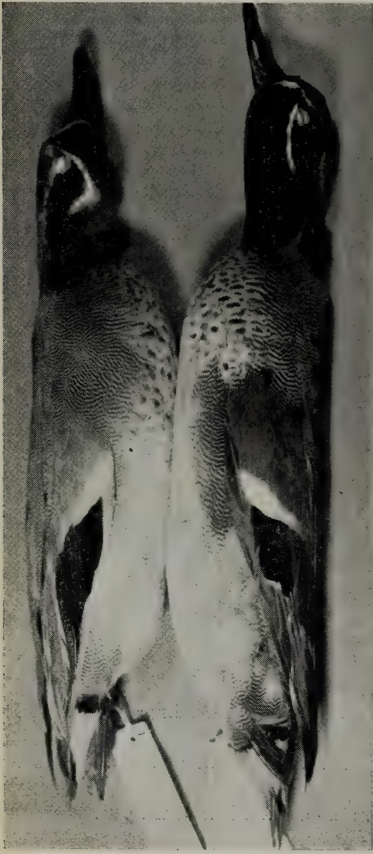
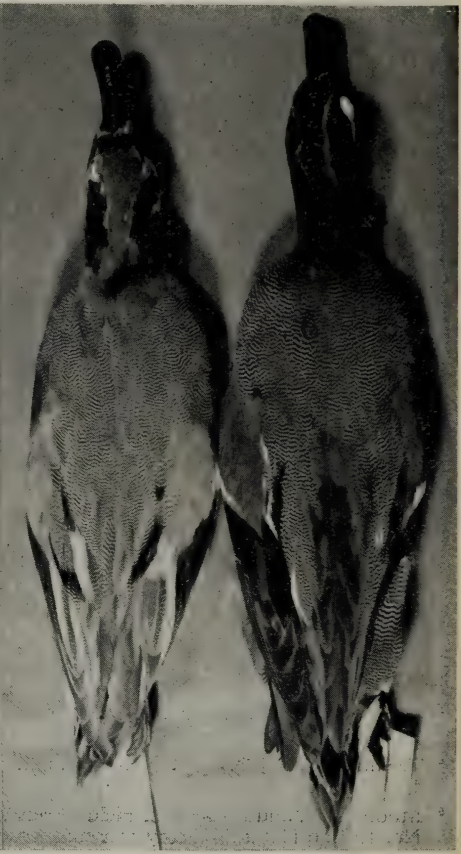
This note describes a type of leucism with a marked accentuation and some modification of the normal facial pattern in the drake European Green-winged Teal, *Anas crecca crecca* Linnaeus.

Leucism is frequently seen in birds and in general terms may be described as a degree of loss of pigmentation. This loss of melanin can as a result expose one of the underlying complementary and predominating pigments, converting for instance a yellow-green form or blue form into a yellow form. Where, however, no such other pigment is present a generalised pallor is produced and such a subject is well described as leucistic.

The subject of this note is an adult drake European Green-winged Teal *Anas crecca crecca* (Figs. I and II) which was caught in the duck decoy at Numansdorp, Bijerland, South Holland on 3rd December, 1961 (Collection of the Zoological Museum, Amsterdam, Registered No. 16,317).





(Photographs by P. F. Harrison)

Fig. I. European Green-winged Teal showing marked pallor and accentuation of facial pattern.

Fig. II. Dorsal aspect of same specimen. Note the white lines extending onto the forehead of the variant bird.

The leucistic character of this individual is well shown in the photographs, but in addition there are several points of especial interest. One of these is the marked accentuation of the head markings, particularly the white lines at the base of the bill, which almost meet in the mid-line of the forehead; these same lines run downwards and backwards below the eyes, measuring approximately 2 mm. to 2.5 mm. wide and terminating on either side posteriorly in broad fan-shaped markings approximately 11 mm. broad x 17 mm. long. In a series of thirty adult drakes of this species examined no similar variation, nor even tendency, was found.

Since the extent of the leucism is well shown in the photographs further detailed description is unnecessary. However, another curious feature this bird presents is what appears to be a degree of melanism affecting the specula, for these entirely lack the brilliant iridescent green of the normal bird and have become dull sooty-bronze; a similar change has affected the green of the sides of the head; the nuchal tuft, however, remains unaffected.

The measurements fall within the normal range for drakes of this species.

It should be noted that the changes described in the wing specula and of the sides of the head do not show in black and white prints; another point it is necessary to stress is that the smallest primary coverts are in fact *very* pale fawn-grey: this can be seen if this area in the lateral view is closely scrutinised, otherwise it could be thought to be white.

Acknowledgements

My sincere thanks are due to Professor K. H. Voous for the loan of this specimen and for permission to publish this note; also to Dr. Pamela Harrison for the photographs.

Notes on some specimens mainly from Aldabra

by C. W. Benson

Received 13th August, 1962

Thanks to the kindness of Drs. A. Wetmore and Philip S. Humphrey, and to generous assistance from the Frank M. Chapman Memorial Fund, through Dr. D. Amadon, I have been able to study some of the specimens collected by Dr. W. L. Abbott on Aldabra Island, reported on by Ridgway (1895). The following notes are based on material in the United States National Museum except as otherwise indicated.

(1) *Eurystomus glaucurus:* Ridgway (1895: 534) records a specimen of *E. g. glaucurus* (Müller), 10th December. It is in adult dress, with wing 194 mm. There is another adult in the American Museum of Natural History, collected by F. R. Mortimer, 24th December, 1904, labelled "Ile Piquart, Aladabra. Migratory bird. Shot by mistake.", wing 196 mm. Also in the American Museum is an immature specimen, collected by Krishnasamy Naidoo, on Anjouan, in the Comoros, 10th April, 1907, wing 192 mm., and not mentioned by Benson (1960: 55).

(2) *Tyto alba:* Although not mentioned from Aldabra by Sclater (1924) or by Peters (*Check-list of the Birds of the World*, 4, 1940), Ridgway (1895: 533) records four specimens (under the name *Strix flammea*), but had to leave the subspecies indeterminate for lack of comparative material. Compared to 10 African specimens, three of these four are rather paler

on the upper side. On the under side, all four Aldabra specimens are white, though one has a slight wash of rufous. Five of the African specimens are quite strongly washed with rufous, though the remainder lack any such wash. Another male from Aldabra, dated 27th August, 1906, in the American Museum, is markedly rufous below, while on the upper side it can be matched with various individual specimens from both Africa and Madagascar. On colour I can see no justification for separating the five Aldabra specimens. They have wing 297, 298, 298, 298, 300 mm. Thus, reference Benson (1960: 59), like specimens from Madagascar and the Comoros, they average rather larger than those from Africa, though there is so much overlap that all are best assigned to the African *T. a. affinis* (Blyth). Four specimens from Anjouan, Comoros, in the American Museum, not included in Benson's figures, have wing 306, 307, 307, 308 mm.; likewise seven from Madagascar 293, 297, 298, 299, 303, 313, 315 mm.

(3) *Phedina borbonica:* Ridgway (1895: 535) records a specimen collected on 19th November, but could not decide whether it was a *P. b. borbonica* (Gmelin) or *P. b. madagascariensis* Hartlaub, having only descriptions of the differences available. No reference is made to this record in Sclater (1930) or Mayr & Greenway (1960). I have compared the specimen with a series of 29 of *P. b. madagascariensis* in the American Museum, to which I consider it should be attributed, as indeed is much the most likely on geographical grounds. It is true that it differs in having the forehead, lores and chin uniform dark brown, and the under tail-coverts brown rather than white, but these differences would appear to be due to staining, probably in the process of skinning. In other respects it agrees well with specimens in worn dress (as it is), those in fresh dress being greyish in tone on the upper side. In the British Museum I have compared four specimens of *P. b. borbonica* from Mauritius and Re-union with 31 of *P. b. madagascariensis* from Madagascar, and three from Pemba Island and Lake Chilwa, Nyasaland. *P. b. borbonica* differs from *P. b. madagascariensis* in being much darker above, with the dark shaft-streaks hardly apparent. On the under side, the streaks on the chin to abdomen are margined with pale brown rather than white, resulting in a more dingy appearance. The feathers of the under tail-coverts are brown with white tips, instead of wholly white, except that dark shaft-streaks are apparent in both forms. The specimens of *P. b. borbonica* have wing 110, 110, 115, 121 mm., while 63 of *P. b. madagascariensis* measure 108–124, average 114.9 mm. The Aldabra specimen has wing 112 mm. Presumably it had been bred in Madagascar.

(4) *Riparia riparia: R. r. riparia* (Linné) is not recorded from any island in the western Indian Ocean in Sclater (1930) or Mayr & Greenway (1960). However, Rand (1936: 427) records a specimen from Lac Iotry, Madagascar. It is in the American Museum, and is dated 11th December, 1929. Ridgway (1895: 526, 536) records two specimens, under the name *Clivicola riparia*, respectively from Gloriosa Island, 29th January, and Aldabra, 2nd December. All three specimens appear to be *R. r. riparia.* Ridgway quotes Abbott as having seen several on Gloriosa, though it was not common. Both Abbott's specimens, like that of *Phedina borbonica*, seem to have been stained while skinning. The Gloriosa specimen has blackening on the chin, the Aldabra specimen dark brown on the chin and throat, so

that only a little white is apparent on the lower throat, adjacent to the brown chest-band. Ridgway (1895: 534, 535) also records a specimen each of two other palaearctic migrants, from Ile Picard, Aldabra, in December, *Motacilla campestris* Pallas and *Micropus apus* (Linné). Unfortunately I was unaware of this until after I had left the United States National Museum.

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The post-ocular green stripe as a plumage character of the Anatinae

by C. J. O. Harrison

Received 20th July, 1962

INTRODUCTION

In recent years a number of variant and hybrid ducks have been described, and the plumage characters discussed in relation to the phylogeny of the species concerned. In the present paper an attempt has been made to review such a character as it appears in normal birds and hybrids throughout a group of species—in this case a subfamily. It is considered that such an examination is likely to give a more accurate assessment of the value of such a character as an indicator of phylogeny than can be achieved by a study of only a few species. The reference numbers given for some of the hybrids refer to specimens in the collection of the British Museum (Natural History).

DESCRIPTION

When the skin of a hybrid duck, *Anas platyrhynchos* x *A. strepera* was examined, it was observed that the head showed a green post-ocular stripe on a chestnut-brown background, very like that of the Common Teal, *Anas crecca*, this pattern being absent from the plumage of the parent species. Subsequently a study was made of the plumage patterns of the Anatinae to record how frequently this green stripe recurred as an element in the head pattern. In its most marked form this stripe may encircle the eye, and curves away downwards to the nape. In some cases it is less apparent and may not reach the eye, but commences a little posterior to it. In the following list of its occurrence in various species and hybrids the taxonomic arrangement proposed by Delacour (1954–59) has been used.

The stripe is present in the following birds:—

ANATINI

Common Teal, *Anas crecca*, (♂) Well-marked stripe, emphasised by a buff border.

Baikal Teal, *A. formosa*, (♂) Well-marked stripe, edged with white, commences posterior to the eye and is broadest at the nape.

Falcated Teal, *A. falcata*, (♂) A broad iridescent green stripe on an iridescent purple head.

European Wigeon, *A. penelope*, (♂) Vestigial remnant, marked only by a few green feathers near the upper posterior edge of the ear-coverts.

American Wigeon, *A. americana*, (♂) Ill-defined stripe, commencing posterior to the eye, narrow and mixed with black feathers.

Chiloë Wigeon, *A. sibilatrix*, Stripe present but not obvious from all angles, tends to merge with the purple gloss of the neck.

Pintail, *A. acuta*, (♂) There is a small area of lilac iridescence towards the posteoirr edge of the brown plumage, on either side of the head, which, when viewed from behind, shows green.

Blue-winged Teal, *A. discors*, (♂) The sides of the head are bluish-green and, viewed from behind, show an ill-defined green stripe.

Hybrids

Mallard x Gadwall, *A. platyrhynchos* x *A. strepera*, (B. M. 1905.11.20.1) In this the sides of the head are light chestnut-brown, the crown is black, and the lores are blackish. A green stripe appears a little posterior to the eye and continues to the nape.

Another specimen (B. M. 1905.2.24.1012) is similar but with a more distinct, teal-like stripe, the stripes uniting at the nape to continue as a green area encircling the lower neck.

(*A. platyrhynchos* x *A. strepera*) x *A. strepera*. This has the crown chestnut with blackish barring, ear-coverts golden-buff, and a bronze-green iridescent stripe from behind the eye to the nape.

Chilean Teal x Mallard, *A. flavirostris* x *A. platyrhynchos*. Crown and checks blackish freckled buff, throat black, faint greenish stripe visible behind eye.

Spot-billed Duck x Mallard, *A. poecilorhyncha* x *A. platyrhynchos*, (B. M. 82.2.28.10) Cheeks buff speckled with dark brown, crown dark brown. Ill-defined green stripes similar to those of *A. americana* meeting at the nape.

Grey Duck x Pintail, *A. superciliosa* x *A. acuta*, (1924.5.31.118.) Ear-coverts buff on anterior, white on posterior, speckled with black; crown mixed black and brown; faint evidence of green stripe.

European Wigeon x Common Teal, *A. penelope* x *A. crecca*, (B. M. 1929. 8.7.2.) Very like a teal. A broad bold green stripe, with traces of a pale edge, on a light chestnut head.

European Wigeon x Pintail, *A. penelope* x *A. acuta*, (B. M. 1913.3.1.1.) Cheeks pale cream divided by a vertical band of black below the eye (''Bimaculated'', see Harrison, J. 1953, Sage 1960) Throat black, crown chestnut, distinct green stripe from eye to nape.

Another specimen (B. M. 1905.1.11.1.) This is similar but without the dark band on the cheek, and with a blacker throat and buffer crown.

From the foregoing list it can be seen that the green post-ocular stripe, which features as a prominent part of the head colouring of some species of *Anas*, is also present to varying degrees in other species, and may appear in hybrids where it is not apparent in either parent species. This tendency for hybrid ducks to show facial patterns differing from those of the parents but similar to the pattern found in other species has been described by J. M. Harrison (1945, 1953) and by Sage (1960) with reference to the "bimaculated" facial patterns. The phenomenon has been termed "reverse mutation".

The occurrence of the green stripe in some fo these hybrids might be explained if we assume that *A. platyrhynchos* possesses a green post-ocular stripe which is concealed by virtue of the fact that the remainder of the head plumage is of the same colour. This might also be true in the case of the Shoveler, *A. clypeata*. The stripe has a signal function in the epigamic displays. Lorenz (1955) has described the "head-turning" posture which occurs in many species of Anatinae, in which the drakes turn the back of the head towards the female, partially erecting the feathers, so that a distinctive pattern is presented to her. The post-ocular stripe plays an important part in forming this pattern. It is significant that in the case of *A. platyrhynchos* the feathers of the nape and the back of the head are erected, appearing black to the duck, while those of the sides of the head are sleeked down so that a distinct green stripe is then visible in that part of the plumage where the post-ocular stripe would occur. It is also signfiicant in view of the display function, that the green iridescence on the heads of the males of *A. acuta*, *A. discors*, and *A. rhynchotis*, is only visible when viewed from behind.

CAIRININI

Carolina Duck, *Aix sponsa*, (♂) In this species most of the head is iridescent. There is a distinct tract of feathers marking the post-ocular stripe which is purple near the eye, but otherwise green.

Mandarin Duck, *Aix galericulata*, (♂) There is a distinct green stripe, partly obscured by a creamy supra-orbital stripe which also encircles the eye.

Muscovy Duck, *Cairina moschata*, (♂) Iridescent green on the black head-feathers is only visible in some lights, but is more marked in the post-ocular region and less apparent on the crown.

Green Pygmy Goose, *Nettapus pulchellus*, (♂) The sides and back of the neck are dark glossy green and there is green iridescence on the feathers of the nape and the post-ocular region.

African Pygmy Goose, *Nettapus auritus*, (♂) Crown and nape are dark glossy green. The sides of the head are white, but there is a large patch of glossless pale green feathers bordered with black on each side of the neck posterior to the ear-coverts.

Hybrids

Carolina Duck x Gadwall, *Aix sponsa* x *Anas strepera*, (B. M. 1913.4.5.1) ear-coverts light brown, post-ocular stripe and crown entirely iridescent green, nape and neck purplish black.

Carolina Duck x Pintail, *Aix sponsa* x *Anas acuta*, (B. M. 1891.8.25.1.) head mainly dark with green and purple sheen. Cheeks and throat with many pale greyish feathers. A clear green post-ocular stripe present.

Another specimen (B. M. 1924.5.3.1). Ear-coverts and neck speckled white and brown, crown and post-ocular stripe completely green.

Carolina Duck x Wigeon, *Aix sponsa* x *Anas penelope*, (B. M. 1924.5.31. 123). Throat reddish; ear-coverts speckled black on buff, crown speckled black on brown. Green iridescent nuchal tuft, the green colour extending forwards to just over the eye.

In this tribe the genus *Aix* appears to possess a green stripe homologous with that of the Anatini. It tends, however, to be obscured by other signal plumage and seems not to play any special part in the display of these species. The patterns shown by *Nettapus* present some problems. They appear analogous to the green stripe in that they are signal patterns with similar colours on a similar area of the head plumage, and presumably they have a display function, but, unless one assumes that there is some evidence in the distribution of green plumage in *N. pulchellus*, there is no clear indication as to whether these are homologous or whether they have evolved independently to fulfil similar needs.

AYTHYINI

Hybrids

Tufted Duck x Ferruginous Duck, *Aythya fuligula* x *Aythya nyroca*. Two specimens. One shows a rufous crown and tuft, the rest of the head being glossy green; the other has the same rufous crown and tuft, with the remainder of the head brown save for an ill-defined iridescent green stripe extending back from the eye and broadening to a distinct green area on the nape.

Many of the species in this tribe show green or purple iridescence over most of the head. The fact that hybrids of purple-headed and red-headed species, *e.g. Aythya fuligula* x *Aythya nyroca*, and *Netta peposaca* x *Netta rufina*, show green-glossed heads suggests that the colour of the gloss is related to the underlying pigment. The head of *A. fuligula* is mainly purple with a greenish gloss only visible in some lights. The reduction of the gloss to a green stripe in the post-ocular region in one of the hybrids suggests that the genetic potential for such a stripe may persist in the inheritance of these species.

MERGINI

Bufflehead, *Bucephala albeola*, (♂) Gloss of the head is mainly purple and the large white patch behind the eye masks most of the area where the stripe would otherwise be, but a bright glossy green area extends from this white patch to the nape and the loral region has a dark green gloss.

Smew, *Mergus albellus*, (♂) The head is mainly white but there is a dark green glossy stripe arising a little behind the eye and extending to the nape where the two stripes unite to form a dark nuchal tuft.

In the genera *Mergus* and *Bucephala* the conspicuous signal plumage of the head consists of crests and white patches. The presence of an apparent green stripe in two species does suggest that this pattern may be shared by this tribe, and since a number of species in these genera have green-glossed heads the possible presence of concealed green stripes cannot be ruled out.

SOMATERIINI

Common Eider, *Somateria mollissima*, (♂) There is a pale, non-glossy green stripe in the post-ocular region, although the area immediately behind the eye is covered by part of the black cap. There is also a pale green patch on the side of the head which appears to be part of the same area of coloured plumage that includes the stripe, but is separated from it by a white line.

Steller's Eider, *Polysticta stelleri*, (♂) Head is mainly white with a tuft of non-glossy pale green feathers on the nape, and a paler area on the forehead.

The Eiders present a problem similar to that shown by *Nettapus*. In each case there is an area of pale non-glossy green feathers present on the head in a similar region to the post-ocular stripe but more extensive in area. This plumage is, in the case of the Eiders, undoubtedly analogous to the stripe, being used in a head-turning display, but it is not possible to be sure of its homology. The Spectacled Eider, *Somateria fischeri*, has in the males a similar green colour over most of the head. The fact that this type of colouring occurs in two different tribes does suggest that it may represent a form of the green stripe, and that the difference in colour may be due to a simple factor such as appears to control the green and purple glosses. It seems more likely that there is homology here rather than that the patterns of *Nettapus* and the Somateriini should have arisen from independent evolution of similar signal markings within a related group. It is probable that the conspicuous and well-formed stripe apparent in *Anas formosa*, for example, is a variant of the basic green stripe as elaborate and highly evolved as the green markings on the head of *Somateria mollissima*.

DISCUSSION

From this list of species in which it occurs it can be seen that the existence of green-glossed feathers in the post-ocular region of the head is more widespread than might be supposed from a superficial examination of the character. It has been assumed here that where plumage of a similar colour occurs at a similar place on the body in different species which are considered to have a common genetic origin, this plumage is produced by related genes. The green stripe is conspicuous and usually confined to males, and has a function in the epigamic displays. It is most apparent and most elaborate in the Anatini, where it plays an important part in displays, In *Aix* it is present but partially obscured by other plumage patterns used in display, and it may reasonably be suspected that it precedes the latter patterns as a signal plumage. The same might be true in the Mergini. Its appearance in a hybrid of the Aythyini suggests that it is a part of the genetic inheritance of this tribe, but there is no evidence that it has ever been phenotypically apparent. The markings in *Nettapus* and the Somateriini could be regarded as a divergent evolution of signal markings from the same character.

The green post-ocular stripe, as a plumage character of the Anatinae, appears to show a distribution similar to that of plumage characters studied in other groups, and also to the bimaculated pattern as discussed in the study of estrildine plumage patterns (Harrison, C. J. O. 1960, and in press). It is apparently present as part of the genetic inheritance of most, if not all, of the subfamily, but is only phenotypically apparent in the plumage of some genera. In some species it is not apparent; in some it is present in a simple, inconspicuous form; in others it has been evolved into a more elaborate form to play a conspicuous part in the display plumage and to help form the patterns which aid specific recognition. In others again it is present but partly obliterated by other patterns used in epigamic display; and there seems to be evidence that secondary loss may occur, as is suggested by hybrids of *A. platyrhynchos* and *A. penelope* which seem to show that in these species areas of conspicuous uniform coloration may occur at a later stage in the evolution of plumage pattern, resulting in a loss of the components of the more complex patterns. There is a parallel to the latter in some estrildine species where a spread of uniform coloration can be seen to be obliterating or suppressing patterned plumage.

The study of estrildine patterns also reveals that where birds of the same widely dispersed family have a common inheritance of plumage pattern, such patterns show only limited variation; and, where there is pressure for the evolution of new patterns, such patterns will tend to evolve along similar lines showing convergence at their various stages. It is possible for allopatric species which are not immediately related to evolve very similar patterns. In *Anas*, *A. discors* and *A. rhynchotis* may furnish examples of this, each showing the crescentic white patch on the head, and the bluish gloss with the concealed green stripe, yet each possibly evolved independently on the separate continents.

From the evidence of variants and hybrids (see also Harrison, J. 1945, 1953, 1959) it would appear that *Anas platyrhynchos*, *A. crecca*, and *A. formosa*, may have had an ancestral head pattern showing both the bimaculated pattern and the green post-ocular stripe in a simple form. In *A. crecca* only the stripe is now apparent and in *A. platyrhynchos* neither is obvious. However, it is inadvisable to conclude that this type of pattern loss gives an indication of direct derivation or of phylogenetic relationship between one species and another. There appears to be a need for variation in plumage patterns in order to ensure specific recognition, and it is likely that the facial patterns of *A. platyrhynchos*, *A. crecca*, and *A. formosa* represent equal divergence and elaboration of a common basic pattern, resulting in specific identity. Since the genetic existence of such patterns does not necessarily result in their phenotypical appearance in the plumage of the species we cannot definitely conclude that the evidence which we possess proves that there is any closer relationship between these three species than that implied by their generic grouping with other species.

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14 JAN 1963

CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

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Other correspondence should be addressed to the Hon. Secretary, Dr. J. G. Harrison, "Merriewood", St. Botolph's Road, Sevenoaks, Kent.

DINNERS AND MEETINGS FOR 1963

15th January, 19th February, 19th March, 16th April, 21st May, 17th September, 15th October, 19th November and 17th December.

(The October or November meeting will be held jointly with the B.O.U.)

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BRITISH MUSEUM NATURAL HISTORY

11 FEB 1963
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February
1963

BULLETIN
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BRITISH MUSEUM NATURAL HISTORY

The six hundred and fourth meeting of the Club was held at the Rembrandt Hotel, London, on 15th January, 1963.

Chairman: MR. R. S. R. FITTER

Members present: 16; guests 3; total 19.

Dr. D. Summers-Smith gave a well illustrated address on

The House Sparrow

It is postulated that the Palaearctic sparrows (genus *Passer*) evolved from an ancestral sparrow spreading from tropical Africa down the Nile valley into the Mediterranean region. Some of these birds came into contact with man, who in the Tigris-Euphrates region was evolving from a nomadic hunting way of life to a sedentary agricultural one, and becoming closely associated with him evolved as the species we now call the House Sparrow, *Passer domesticus*. This species spread with agricultural man and by the beginning of the 19th century was present over most of Europe and southern Asia as far as Burma. With the opening of Siberia to agriculture it has spread across to the Pacific coast and from deliberate introductions to other parts of the world colonised by men from western Europe it is now present over much of the land surface of the globe. Not only is it probably the most widely spread species of land bird, but censuses carried out in many parts suggest it is also the commonest.

Observations of colour-ringed birds in England show that this species is extremely sedentary, many individuals living their lives within a compass of one or two miles from their birth place. Pairs are not only faithful to each other but retain the same nest-site throughout their lives. Contrary to expectation in a resident species, the greatest mortality among the adults occurs during the breeding season and not in the winter months.

It is suggested that the key to the bird's success has been its association with man. This has provided it with secure breeding sites and an assured food supply throughout the year and has allowed it to take up a sedentary way of life with the consequent advantages this affords. Continued spread and population increase are to be expected with the increasing agricultural development and urbanisation that are now taking place all over the world.

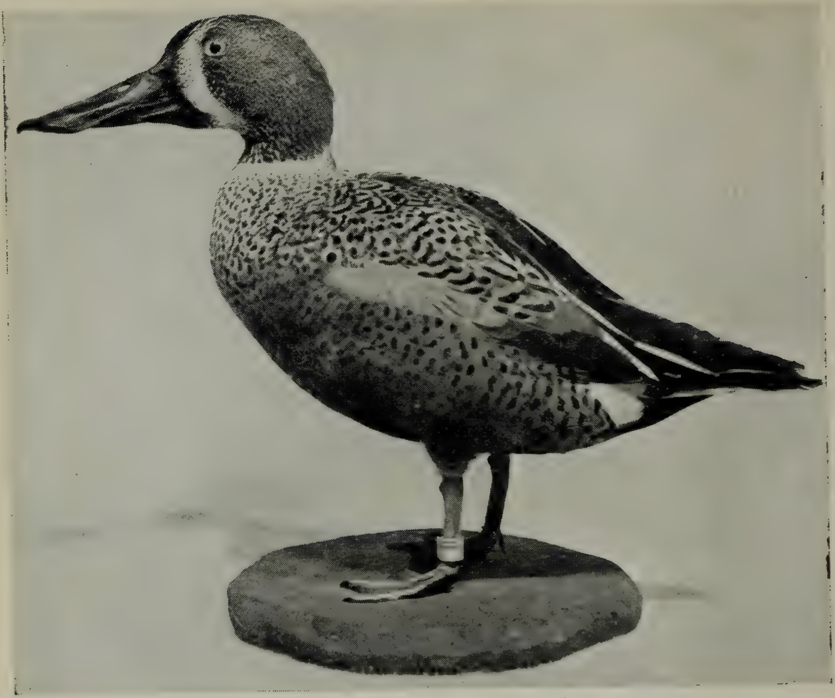
Comments on a hybrid Red Shoveler x Northern Shoveler

by JAMES M. AND JEFFERY G. HARRISON

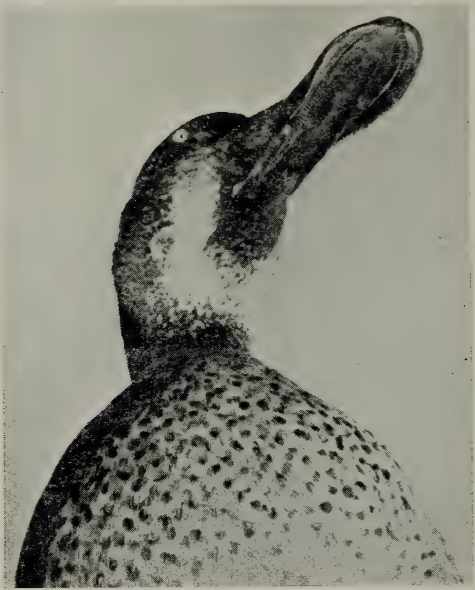
(Exhibited to the B.O.C. on 15th May, 1962)

SUMMARY

A hybrid between the Red Shoveler *Anas platalea* Vieillot and the Northern Shoveler *Anas clypeata* Linnaeus shows certain characters



Red Shoveler x Northern Shoveler



Chin and throat of hybrid Red Shoveler x Northern Shoveler, showing how the cheek crescents unite, just behind the blackish throat; also the spotting on the whitish breast referable to the parent species and others referable to the Australasian Shoveler *Anas rhynchotis* Latham and the Mallard *Anas platyrhynchos platyrhynchos* Linnaeus. The latter are considered to have arisen by gene recombination and to be ancestral, providing further evidence that the Shoveler species group developed by a single direct line of evolution with close affinities to the Mallard.

INTRODUCTION

About five years ago, Frank Grant of Evington, Leicestershire, bred three hybrids between a drake Red Shoveler *A. platalea* and a duck Northern Shoveler *A. clypeata.* All three were drakes by plumage and were aggressive and unsatisfactory to keep with other wildfowl. Through the kindness of Richard Bream we have been able to borrow a mounted drake of one of these hybrids in full plumage, beautifully prepared by E. Williams of the Leicester Museum. Mr Bream tells us that this specimen was in its third year and that its full plumage had been the same in each of its three seasons.

DESCRIPTION

Apart from the head and neck, the characters shown by the hybrid incline strongly towards the Red Shoveler, particularly in the spotting on the pale chestnut scapulars and flanks. The breast is also heavily spotted, as in that species, but the ground colour is pale buffy-white and is of approximately the same extent as is the white breast of the drake Northern Shoveler, so that a similar but less obvious pattern contrast is present between the breast and belly, which is lacking in the Red Shoveler. The remainder of the belly is bright reddish-chestnut, as in the Northern Shoveler, finely spotted or barred with black towards the periphery. There are two prominent white patches on either side of the rump, comparable to the Northern rather than the Red Shoveler. The under and upper tail-coverts are black, the central tail feathers are rather more elongated than in the Northern Shoveler (see measurements) and sepia; the remainder of the tail feathers are whitish, barred sepia. The rump is dark sepia. The mantle is pale chestnut with prominent dark sepia crescents. The wings and long scapulars are as in all Shovelers and present no modification with the typical bright blue shoulders, green speculum, edged broad white in front, narrow white behind and the long scapulars are white, black and blue.

The crown, lores and throat are dark sepia, almost black, with a slight purplish reflection on the crown. Running upwards on either side in front of the eyes are prominent whitish crescents, somewhat speckled with dusky striations. The concave sides are towards the eyes and extend level with them, above and below. These crescents join below on the chin, just distal to the blackish throat patch. The remainder of the cheeks and neck are lavender-grey, lightly reflecting a bluish-green. This colour and the pale crescents can be exactly matched by some specimens of the Australasian Shoveler *A. rhynchotis.*

The specimen shows a well developed white ring between the neck and upper breast: this is almost complete, though just separated at the back by a narrow extension downwards of the lavender-grey of the neck. This character can be matched by the drake Mallard *A. platyrhynchos* and as a transient character by certain first year drakes of the Northern Shoveler, while moulting into first winter plumage. This character is of considerable interest, particularly as the bird is an adult and the character constant.

The irides were dull yellow, the tarsi and toes ochreous yellow, webs dusky, as in the Red Shoveler and the bill black.

The measurements in mm. were as follows:

	Red Shoveler ♂♂ (after Delacour)	Hybrid	Northern Shoveler ♂♂ (after Delacour)
Wing	213–222	242	230–252
Culmen	63–67	64	60–70
Tarsus	34–38	38	32–37
Tail	115–120	96	72–85

It will be noted that the tail has become elongated well beyond the normal range of the Northern Shoveler and the wing elongated well beyond the normal range of the Red Shoveler, so that on size a definite intermediacy is present.

DISCUSSION

This remarkable hybrid is of considerable interest, in that it possesses not only characters of its two parent species, but also characters on the head and neck, which are found in two other dabbling duck species, the Mallard and the Australasian Shoveler, the cheek crescents being as well marked as many of the New Zealand race of the latter *Anas rhynchotis variegata* Gould.

We are considering, therefore, a further example of heterophoric reverse mutation, which brings it into line with the hybrid European Green-winged Teal *Anas crecca crecca* Linnaeus x Northern Shoveler *Anas clypeata* Linnaeus (Harrison 1953) and the hybrid Wigeon *Anas penelope* Linnaeus x Northern Shoveler *Anas clypeata* Linnaeus (Harrison, 1959), both of which developed head patterns resembling none of the three parent species involved. Instead, both head patterns were very similar to that of the drake Baikal Teal *Anas formosa* Georgi, being strongly "bimaculated".

In this case, the three characters not found in either parent species are first, the strongly marked whitish crescentic markings on the cheeks, meeting under the chin. This can be exactly matched by drakes of the Australasian Shoveler, as can the second character, the pale lavender-grey on the sides of the head and neck, with bluish-green reflections.

The third character, the prominent white neck ring is strictly comparable to the white neck ring of the Mallard drake, being of the same proportion and in exactly the same position in the hybrid. In this connection, it is of interest to remember that Northern Shoveler, first winter drakes in transition plumage, often show transient white neck rings and pale cheek crescents (Harrison and Harrison, 1959), so that for a few weeks only, young Northern Shoveler drakes may have a pattern remarkably similar on the head and neck to the hybrid, although less striking in appearance. An example was illustrated in our paper (1959, *loc. cit.*) on p. 138. The difference in the hybrid is that the pattern has been shown to be constant, persisting into adult full plumage.

We consider that the neck ring, cheek crescents and colour of the sides of the head and neck are all ancestral characters revealed by gene recombination in the hybrid state. The white neck ring is further evidence in confirmation of Delacour's opinion (1956) that the Shoveler species group has affinities with the Mallard. The last two characters indicate the close affinities between the three Shoveler species inhabiting the Holarctic area, South America and Australasia respectively.

This only leaves the one other Shoveler species, the Cape Shoveler *Anas smithi* (Hartert) of South Africa and it is noteworthy that Winterbottom and Middlemiss (1960) consider that *clypeata* and *smithi* diverged before the latter had evolved a marked sexual dimorphism, and that *smithi* has probably remained close to the ancestral form from which *clypeata* evolved.

This hybrid therefore provides further striking evidence that the Shoveler species have arisen, not by parallel evolution in widely separated parts of the world, but by a single distinct line of evolution (Delacour's "Blue-winged Ducks") within the genus *Anas*, and with close affinities to the Mallard. The "bimaculated" face pattern revealed in the other two hybrids in which the Northern Shoveler was involved is probably even more ancestral, the crescent being a part of this character, which has become dominant in some forms.

ACKNOWLEDGEMENTS

We are most grateful to Richard Bream, Frank Grant and Geoffrey Grant of the Leicestershire Wildfowlers' Association for telling us of the hybrid and to the former for the loan of the specimen. We would also like to express our thanks to Mr. J. D. Macdonald for permission to study the necessary comparative material in the British Museum (Natural History) and to Mrs. Pamela Harrison for the photographs illustrating this paper.

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Notes on African Estrildinae

by C. M. N. White

Received 24th September, 1962

The present notes have been prepared whilst revising the African waxbills for the final section of my revised Check List of African passerine birds. I prefer to keep the waxbills as a subfamily of the *Ploceidae*, and not to raise them to full family status as Steiner has proposed should be done.

1 *Hypargos niveoguttatus* (Peters)

The nominate form in which females have a brown throat and breast are clearly distinct from *macrospilotus* in which females have a red throat and breast, as Clancey has claimed. Nominate *niveoguttatus* ranges from southern Mozambique to eastern Southern Rhodesia on the plateau, but not into the Zambezi valley where *macrospilotus* occurs. The latter occupies the rest of the range, and I cannot confirm the claims of any of the three additional forms proposed by Clancey.

2 *Pirenestes ostrinus* (Vieillot)

I regard all the forms of *Pirenestes* as conspecific since they only differ basically in the degree of melanin in the plumage with black replaced by brown in the extreme west and extreme east of the total range. Whilst differences in bill size still seem to distinguish the two upper Guinea forms *sanguineus* and *coccineus*, I find the differences in bill size elsewhere very unsatisfactory characters despite the great range of variation between the smallest and largest birds. There is complete intergradation between them, and in particular it seems quite impossible to separate satisfactorily *rothschildi* from *ostrinus*. Until field work provides some more convincing grounds for considering that taxonomic significance should be accorded to these variations, I prefer to treat both the large *frommi* and *rothschildi* as synonyms of *ostrinus* and *vincenti* as a synonym of *minor*. I note that whilst Chapin's arguments in favour of an ecological separation and different diet being related to bill size in the lower Guinea area and its periphery are plausible, they do not provide a satisfactory basis for explaining similar differences in bill size in *minor*.

3 *Estrilda poliopareia* Reichenow

Whilst the other forms of *E. paludicola* are obviously correctly treated as conspecific, the grounds for including *poliopareia* are less certain. The creamy (instead of brown) iris, larger bill, and orange upper tail-coverts suggest that though derived from *paludicola*, it is perhaps better regarded as a full species. The range is remarkably restricted, since it is only known from the region of Agoulerie in the Eastern region of Nigeria, though evidently quite abundant in its single locality.

4 The genera *Granatina* and *Uraeginthus*

Granatina consists of two species which form a clear superspecies with a commonly recurring type of range in the dry areas of south-western and north-eastern Africa. The three blue waxbills which form *Uraeginthus* are also very similar to each other and wholly or virtually allopatric, forming another superspecies. Thus both genera in terms of biogeographical species are monotypic, and such small peculiarities as each shows should be regarded as specific characters, indicating that both genera should be merged with *Estrilda*, as already proposed by Delacour.

5 *Estrilda angolensis* (Linnaeus) and *E. bengala* (Linnaeus)

These two very similar species exhibit two problems, the question of whether or not they are conspecific, and the degree of geographical variation in each.

(a) So far as I can trace, there is no evidence that *angolensis* and *bengala* are ever sympatric, but exactly what happens when the ranges meet is obscure, and I have failed to find any example in collections from such a critical locality which is plainly an intermediate. In Northern Rhodesia *angolensis* occurs on the Copperbelt and *bengala* in the north-west at Mwinilunga and Kabompo. Efforts to obtain specimens from such an intervening area as Solwezi have been unsuccessful, neither species being found there to date. Both species occur in the Katanga though not apparently sympatrically. As might be expected *bengala* is the more widespread in the Katanga but in the British Museum and at Tervuren I have examined *angolensis* from Bunkeya, the Lufira river and Kilwa on Lake Mweru and both have been reported from the Upemba area. The extension of *angolensis* to the Kasai seems more doubtful. At Tervuren there is a good series of *bengala* from the Kasai, and a bird from Tshishika identified as *angolensis* appears to me to be a female *bengala katangae*. There is, however, a perfectly typical male *angolensis* from Luluabourg. Since *bengala* is well known about Luluabourg one cannot omit the possibility that this male is really an aberrant *bengala* which has lost its crimson cheek patch through some aberration just as a bird with a trace of crimson cheek patch has been collected in Songea far from any *bengala*. In Tanganyika *angolensis* occupies the south-east, north to Dar-es-salaam and west of Dodoma. It then penetrates north in a corridor of dry country to the Masailand track between Handeni and Kondoa Irangi, and sporadically north to Naberera about 100 miles south of Kilimanjaro. *Bengala* occurs in Tanganyika both east and west of these northern *angolensis*. The *bengala* population of coastal Kenya extends to the coastal area of north-east Tanganyika but its southern and western limits are not known. *Bengala* occupies the *Brachystegia* regions of west Tanganyika from Rukwa to Biharamulo and east south of a line Lake Eyasi-Monduli–Meru–Kilimanjaro south to the Kondoa Irangi–Handeni track and across the eastern end of the latter to 40–50 miles NNE of Kilosa. It also occurs at Iringa. Thus where *angolensis* and *bengala* meet in Tanganyika they appear to be ecologically separated in a way which does not apply to them in Northern Rhodesia.

In view of the above it seems wise to continue to treat *bengala* and *angolensis* as specifically distinct although intensive investigation of areas where ranges meet may show that they are in fact conspecific.

(b) Geographical variation in *E. angolensis* is very slight. It has been usual to regard birds from west Angola, Bechuanaland and Barotseland as a paler nominate form, with a darker form, *niassensis*, in the remainder of the range, and a perhaps still paler extreme, *damarensis*, in northern South West Africa. Examination of a large amount of material in the British Museum and the National Museum, Bulawayo, shows that this division is very ill-defined. However, females from west Angola and northern South West Africa have the blue of the underside ending at the breast, whilst elsewhere it extends down the flanks. Two forms, *angolensis* and *niassensis* can be upheld on this character. Bechuanaland birds hitherto placed under *angolensis* agree with *niassensis* on this character.

(c) Geographical variation in *E. bengala* may be summarised as follows:— *E.b. bengala* in the whole of the northern savannas from Senegal to Sudan, Ethiopia, Uganda and west Kenya is rather warm brown above and females have the throat, face, breast and flanks blue. Synonyms are *schoanus* Neumann and *ugandae* Zedlitz. Both individual and seasonal variation mask any closer trinomial divisions.

E.b. ugogoensis Reichenow occupies the range in west and central Tanganyika outlined above; it is like *bengala* but cold greyish-sepia above. The name *ugogoensis* has long been applied to the birds of coastal Kenya and north-east Tanganyika. In fact the type locality, "Seke, Dodoma" is the same as Iseke, Manyoni district, sixty miles WSW of Dodoma. This indicates that *ugogoensis* must be based on the west Tanganyika form, separated by a belt of *angolensis* from the coastal *bengala*. *Kigomaensis* Grant & Praed is a synonym of *ugogoensis*.

E.b. brunneigularis (Mearns) (Kenya highlands east of the rift), and *E.b. littoralis* (van Someren) (coastal and adjacent south-east Kenya to coastal north-east Tanganyika) have females with face and throat brown instead of blue. *Littoralis* is slightly paler than *brunneigularis* and takes the place of *ugogoensis* as the name of the coastal birds.

E.b. katangae (Vincent) is like *ugogoensis* above but males have a more purplish facial patch, and females are very distinct, being buffy brown below with only face and throat blue. It occupies the range in Kasai, Katanga and Northern Rhodesia.

I believe that recognition of these five forms is sufficient to denote the geographical variation.

6 *The genus Lagonosticta*

Delacour united *Lagonosticta* with *Estrilda*, and since then, a number of different views have been expressed as to its recognition, and if recognised, what species should go into it. *Lagonosticta* is best retained as a genus characterised by colour and pattern typical of the Firefinches in the narrow sense (i.e. the species *rufopicta*, *senegala*, *jamesoni*, *rubricata*, *landanae* and *rara*.), much as it is convenient to separate *Malimbus* from *Ploceus* for analogous reasons. If other species are removed from *Estrilda* to *Lagonosticta*, I can see little point in recognising *Lagonosticta*.

7 *Lagonosticta jamesoni* Shelley

Investigation of this species has brought to light a number of features of special interest in showing the varying extent to which its forms are siblings of *L. rubricata* (Lichtenstein). The two species can always be structurally distinguished because of the emargination of the outer primary in *rubricata*, lacking in *jamesoni*. There are four well marked races of *jamesoni*, commented on below.

L.j. jamesoni has a wide range from Zululand and the Transvaal to the Rhodesias, Katanga, Tanganyika and southern Kenya. I cannot distinguish *taruensis* van Someren after examining specimens from Doinyo Erok, Voi and Tsavo which should represent it. Nominate *jamesoni* overlaps nominate *rubricata*, *r. haematocephala* and *r. rhodopareia*, and though it has been called a sibling species, it is in fact quite easily recognised from any of these forms of *rubricata*, being strongly washed with pink on the upper side, and much paler and more rosy pink below.

L.j. ansorgei Neumann occupies the Angola escarpment north to the Congo mouth. Males are dark brown above without any pink wash and the sides of crown are scarlet instead of pink whilst the under side is likewise scarlet. Here it lives with *L. landanae* Sharpe (either conspecific with *rubricata* or a representative species). *Ansorgei* and *landanae* are much more alike than *jamesoni* is to the forms of *rubricata* living with it but differentiation is easy as *ansorgei* has a blue black bill; *landanae* a pink bill. *Landanae* also has a pink wash on the crown lacking in *ansorgei. L.i. fricki* Mearns was originally described as a race of *rubricata* and long believed to be a synonym of the Ethiopian form of *rubricata* until Chapin briefly pointed out that it is in fact a valid form of *jamesoni*. Males of *fricki* are like those of *ansorgei* but a darker more crimson red below. They are virtually inseparable from males of *rubricata rhodopareia* living with them, apart from the lack of wing emargination in *fricki*. Females of *fricki* are, however, considerably darker and more reddish-pink on the throat and breast and have bright red loral and chin spots lacking in *rubricata rhodopareia*. It had been supposed that *fricki* was only known from the original series in Washington from the Gato river. However, once its characters were defined I found in the British Museum 2 males ad., 1 male imm., 4 females: from Yavello, Ethiopia; 1 male imm., 1 female from Boma plateau, S. Sudan; 1 male Mt. Maroto, Uganda; 1 male, 1 female from Gessima R., Laikipia, Kenya; all wrongly identified with *L. rubricata rhodopareia. L.j. fricki* thus has a much wider range than was supposed, and is much more a sibling of its *rubricata* counterpart than either of the foregoing.

L. j. virata Bates. Originally described as a race of *rubricata*, and still treated thus by Bannerman in his *Birds of Tropical West Africa*, *virata* proved to have no emargination of the outer primary. Males resemble those of *rubricata polionota* Shelley almost exactly above but are more purplish-red, less crimson below. The female unexpectedly is quite unlike that of *rubricata polionota*, and is like the male of *virata* but slightly duller below. *L. j. virata* is only known from the original series from Mopti, Kulikoro and Fiko in Mali (British Museum) and one from Bamako in the Zoological Museum, Copenhagen, which I have examined. It is unlikely to be confined to this area of Mali and should be sought for elsewhere in West Africa.

In preparing these notes I am indebted to the British Museum (Nat. Hist.), Musée de l'Afrique Centrale, Tervuren and Zoological Museum, Copenhagen for facilities to examine material; and to the National Museum, Bulawayo, the United States National Museum, Washington, and the American Museum of Natural History, New York for the loan of material; to Sir Hugh Elliott for information about ranges and observations in Tanganyika, and help over the type locality of *E. b. ugogoensis;* and to Mr. Melvin A. Traylor for information about material in the Chicago Natural History Museum; also to Mrs. B. P. Hall, Mr. C. W. Benson, and Mr. D. Goodwin who examined some of the material with me.

Geographical variation in *Batis pririt* (Vieillot)

by Walter J. Lawson

Received 3rd September, 1962

The Pririt Batis *Batis pririt* (Vieillot) is a small, attractive flycatcher endemic to southern Africa, which occurs in the arid and semi-arid districts of western, central and southern South Africa. It is closely allied to the allopatric *Batis molitor*, a species of the moister treeveld savannas of eastern southern Africa, with which it forms a super-species, the males of the two species being very similar to one another in appearance. *B. pririt* males are smaller in size than those of *B. molitor*, while the females differ more sharply in the zonation and intensity of the coloration of the under parts.

Batis pririt is treated by all workers on Ethiopian birds as a monotypic species, being based on a Levaillant reference. The type-locality is usually given as "Lower Orange River", but this has recently been amended to "Somerset East" in the eastern Cape Province, by Macdonald (1957). Levaillant (1805) states "commune aux deux côtés est et Ouest d'Afrique, d'un côté sur les bords de la grande rivière des Poissons et dans tout le pays des Caffres, et de l'autre, dans celui des Grands Namaquois et notament dans le bois de mimosas qui bordent la Grand Rivière . . ." As it is probable that he never reached the Orange River the placing of the type-locality at Somerset East is probably more accurate. For the purpose of stabilising the names of this flycatcher, it is necessary to accept Somerset East as the type-locality of the nominate race, as the two taxa I propose to admit meet about the course of the middle and lower Orange River.

Examination of the adequate series of this flycatcher in the Durban Museum suggested that the Pririt Batis exhibits geographical variation worthy of nomenclatural expression, specimens from the Cape Province south of the Orange River, Griqualand West and the western Orange Free State, southern Transvaal and the central and eastern 'lowlands' of the Bechuanaland Protectorate differing in their dorsal coloration from those of South-West Africa and the western portions of the northern Cape Province, north of the Orange River, and western Bechuanaland Protectorate. The males of the southern populations differ markedly from those found in South-West Africa and adjacent areas in having the head-top a much darker grey. The black facial stripes, which extend onto the lateral surfaces of the neck, are more pronounced and the grey of the back is suffused with black, giving the upper parts a very dark, saturated appearance. In the South-West African specimens the back is of a grey similar to the pale grey of the head-top, with a marked white 'collar' between the extensions of the black facial stripes on the sides of the neck. In addition the white sub-apical spots on the feathers of the rump are more pronounced, and the secondaries have a more pronounced white stripe to the outer edge, a character which is poorly developed in the austral populations. The white of the under parts is also clearer.

In the females of the southern populations the head-top and back are a dark grey with a blackish suffusion over the latter surface. The deep buff of the breast does not extend onto the dorsal surfaces of the neck in the form of a collar to the same extent as it does in the northern birds, and is almost vestigial in some specimens. Examples from South-West Africa and adjacent areas have the head-top and mantle a light grey with marked spotting to the rump feathers, the white edge to the secondaries is also more pronounced and the deep buff is well marked on the neck.

There is no significant size differences between the two forms. For the populations of South-West Africa and adjacent areas the name *Platystira affinis* Wahlberg, 1855: Damaraland, is available.

The presence of a dark race of *B. pririt* in the south of its range and a paler one in the north is exactly duplicated by the situation in the allopatric species *B. molitor*, the nominate race of which species occurs in the eastern Cape Province, Pondoland, Natal, Zululand, eastern Swaziland and southern Sul do Save, Moçambique, *B. m. molitor* is darker in coloration above than its northern representative, *B. m. palliditergum* Clancey, which ranges from the Transvaal, Southern Rhodesia, eastern and northern Bechuanaland Protectorate, and Ovamboland and the Etosha area, in northern South-West Africa, northwards. In both species the darker of the two races lives in the south and is replaced in the north by a lighter backed form. The mantle of the female of *B. p. pririt* is darker than its counterpart *B. m. molitor*, whereas the males of the two are virtually impossible to tell apart on colour differences.

The two races of *Batis pririt* in southern Africa are therefore;
Batis pririt pririt (Vieillot).

Muscicapa pririt Vieillot, *Nouv. Dict. d'Hist Nat.*, 21, p. 486, 1818: Type-locality restricted to Somerset East, eastern Cape Province, by Macdonald (1957).

The male is characterized by having the head-top and mantle a dark grey, with a pronounced admixture of black in the mantle. The black facial stripes extend onto the sides of the neck and almost form a complete collar of black, the white on the hind neck being constricted. The white outer edges to the secondaries are narrow and virtually lacking in some.

The female, like the male, has the head-top and mantle a dark grey but with an olivaceous wash. The deep buff of the breast does not extend round the neck in the form of a collar owing to the black facial stripe extensions almost obliterating it.

Measurements: 10 ♂♂ wing, 56.0–58.5 (56.7); tail, 44.0–46.0 (44.7); culmen, 14.0–15.5 (14.9). 10 ♀♀ wing, 55.0–57.0 (55.8); tail, 42.5–46.0 (44.1); culmen, 14.0–15.0 (14.5) mm.

Material: 102 (Cape Province, 83; Orange Free State, 10; southern Transvaal, 7; and Bechuanaland Protectorate, 2).

Range: Cape Province south of the Orange River, the extreme eastern Northern Cape Province (Griqualand West), and the western Orange Free State, south-western Transvaal and the south-eastern and central Bechuanaland Protectorate.

Batis pririt affinis (Wahlberg)

Platystira affinis Wahlberg, *Oefv. K. Sv. Vet.–Akad. Förh.*, 1855, 214: "In Mimosis terrae Damararum": here restricted to Okahandja, Damaraland, South-West Africa (see below).

The male differs from that of the nominate race in being markedly paler above, having the head-top and mantle a pale grey, with no admixture of black on the mantle. The black facial stripe extends onto the neck, but does not form a complete collar, the two lobes being separated by white on the nape. The outer edges to the secondaries are broadly edged with white.

The female has the head-top and mantle a paler grey than in the nominate race, with no admixture of black on the mantle. The deep buff collar is more pronounced, and the black facial stripes do not form a collar over the nape.

Measurements: 10 ♂♂ wing, 56.0–58.5 (57.4); tail, 43.0–45.5 (44.2); culmen, 15.0–16.0 (15.6). 10 ♀♀ wing, 55.0–58.5 (57.7); tail, 44.0–46.0 (45.0); culmen, 14.0–16.0 (14.8) mm.

Material: 82 (South-West Africa, 56; north-western Cape Province, 26).

Range: South-West Africa, except in the extreme north, and the north-western northern Cape Province as far east as Kuruman, and the western Bechuanaland Protectorate in the highlands.

Remarks: An examination of the original description of this form shows that Wahlberg collected his material "In Mimosis terrae Damararum", i.e., Damaraland. The exact route taken by this traveller on his journey to Lake Ngami, during which trip he collected *Platystira affinis*, is not known for certain, but "He seems, however, to have travelled *via* Okahandja, Otjihaenena, the Nosob River . . . at least to judge from the labels of a number of birds collected in the February and March 1855" (Gyldenstolpe, 1934). As it is desirable to fix the exact type-locality of this form I have accordingly proposed Okahandja, Damaraland, South-West Africa above.

I am indebted to the Directors of the following Museums for the loan of additional material used in this study; South African Museum, Cape Town (through Dr. J. M. Winterbottom), Transvaal Museum, Pretoria (through Mr. O. P. M. Prozesky) and the East London Museum. I am also indebted to Mr. P. A. Clancey, Director of the Durban Museum, for much valuable help during the preparation of this paper, and Dr. J. M. Winterbottom for assistance with the literature.

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Further breeding records from Northern Rhodesia (No. 3)

by C. W. Benson and Charles R. S. Pitman

Received 9th August, 1962

The same considerations apply in this paper as those explained in the introduction to our paper in *Bull. Brit. Orn. Cl.*, 81, 1961: 156–163. In particular, all eggs mentioned are in the British Museum, unless otherwise indicated.

Phalacrocoracidae, Anhingidae, Ardeidae

(1) E. Cooper collected two fresh eggs, from a C/3 of *Ardea purpurea*, and likewise of *Nycticorax nycticorax* and *Phalacrocorax africanus*, 26th August, 1961, Neganega, near Kafue River at 15° 45′ S., 28° 02′ E. The eggs of *A. purpurea* and *N. nycticorax* are light blue, smooth, without gloss: size respectively 57.2 x 39.1, 55.0 x 39.8; 49.0 x 40.3, 50.9 x 38.5 mm. Those of *P. africanus* are pale blue, slightly chalk-surfaced, smooth, with slight gloss; size 45.1 x 30.4, 45.4 x 29.1 mm. A parent was collected at each of these nests, and identified by C. W. B. The nests were reported by

Cooper as being in a mixed colony, in reeds bordering a lagoon, mostly at about six feet above water level. It was estimated that there were over 100 of *P. africanus*; about 100 of *A. purpurea* and *Egretta alba* (about the same size as *A. purpurea*, mostly with mainly black rather than yellow bills, the colour having probably temporarily changed in the breeding season, see Witherby *et al.*, *Handbook British Birds*, 3, 1944: 139); about 50 of *Ardeola ralloides* (nests lower than those of the other species, mostly only about four feet above water level); and a few of *Anhinga anhinga*. The nests of all species contained three eggs, and even on 3rd September none had hatched, except for one clutch of *A. purpurea*. A Monitor Lizard (*Varanus niloticus*) was seen swimming immediately beneath one nest. It shook the reeds, so that all three eggs fell out, one being caught on the surface of the water and swallowed whole. It then dived for the other two, with what result is not known. For numerous records of predation of eggs by this lizard, see Pitman (1957, 1961).

(2) J. M. C. Uys counted a mixed colony of 183 nests of *Ardeola ralloides* and *Butorides rufiventris*, in a reed-bed in the north-west of the Kafue National Park, the two species being in about equal numbers. The only further details available are that egg-laying started in early March, 1961, and continued until early April. Thereafter no observations were possible, but by early April some young had already hatched.

(3) R. I. G. Attwell observed a mixed colony of *Phalacrocorax africanus* (abundant), *P. carbo* (rare), *Anhinga anhinga* (abundant), *Egretta intermedia* (common) and *Nycticorax nycticorax* (uncommon), on the Lufupa River, in the north of the Kafue National Park, on 13th May, 1961. The identification of *E. intermedia* (quite easily confused with other *Egretta* spp., especially *E. alba*) by this experienced observer may be accepted. The colony extended over some 500 yards of river bank, in *Syzygium* trees. Beneath the colony were crocodiles (*Crocodilus niloticus*), and *Clarias* and *Schilbe* fishes. Predation by *Clarias* and six large crocodiles on young which fell into the water was noticed (for numerous records of predation of birds by fishes and crocodiles, see Pitman, 1957, 1961).

(4) Nineteen records of occupied nests of *Ardea goliath* are available from the north side of the Kariba Lake, during 1959–61, from various observers. Of ten containing eggs or young not more than one week old, the number was in five cases four per nest; in the remainder three. Of nine containing more developed young, only one held as many as three; three held two, and five one only. Evidently there is considerable mortality among nestlings, possibly attributable to Fish Eagles (*Haliaeetus vocifer*). Most nests were solitary, often several hundred yards out in the lake, from one to eight feet above water level, in the tops of dead trees. These nineteen records by months in which egg-laying is calculated to have occurred are as follows: January, five; February, two; March, three; April, June, July and October, one each; November, two; December, three. Considering also the records summarised in the Check List (1957, pp. 3, 157), laying can evidently take place in Northern Rhodesia at any season.

Eupodotis ruficrista ruficrista (Smith)

Coll. C/1 fresh, February, 1961, Livingstone aerodrome (B. L. Mitchell). Rounded, smooth with some gloss; pale stone, with raw umber and burnt umber spots (with staining around) of varying size, generally sparse but more thickly at narrower end, on underlying, very sparse, spots of grey and light grey; size 49.2 x 41.1 mm. No parent was seen. However, the measurements are well within those given by McLachlan & Liversidge (Roberts' Bds. S. Afr., 1957) for *E. r. ruficrista*, and another egg of this form, measuring approximately 52 x 45 mm., is very similar in colour and markings. On the other hand, eggs of *E. cafra*, although similar in size to those of *E. ruficrista*, are distinct in these other respects.

Hemiparra crassirostris crassirostris (Hartlaub)

Coll. C/3 soon to hatch, 16th September, 1961, Lochinvar (D. M. Reid-Henry). The nest was on a semi-floating platform of coarse reed-growth in water six inches deep. One of the eggs was lost. The remaining two are smooth with slight gloss; light brown, without any olive tint, boldly and irregularly blotched and spotted brown and sepia all over, on underlying (and rather sparse) grey; size 42.1 x 30.3, 41.1 x 30.3 mm. They were borrowed from the National Museum, Bulawayo.

J. M. C. Uys saw a pair accompanied by a juvenile not yet quite able to fly, in the Busanga Swamp, 18th September, 1960. For the only other local record indicative of the breeding season, see Benson (1959: 263).

Mescopicos griseocephalus ruwenzori Sharpe

The records in Benson (1959: 266) of immature specimens suggest egg-laying in May/July (five different clutches concerned). Five adult males in the American Museum of Natural History and the British Museum, from Angola south of 10° 50′ S. and west of 16° E. (*M. g. persimilis* Neumann, only differing from *M. g. ruwenzori* in its smaller size), have wing 103–107 mm., culmen (from base, as in all further measurements below) 25–26 mm. But three further males (crown red, in contrast to females, in which it is grey at all ages) therein from this same area, where breeding seasons may be expected to be similar to those in Northern Rhodesia, appear to be not fully grown, as follows: Mt. Moco, 20th August (Am. Mus. Nat. Hist.), wing 101, culmen 22 mm.; Ngungo, Bailundu, 10th August (Am. Mus. Nat. Hist.), wing 105, culmen 20 mm.; Leba, 3rd August (B. M.), wing 103, culmen 22.5 mm. Compared to the adults, all three are a duller olive, while that from Mt. Moco has only a trace of red on the abdomen, the other two none at all. They were probably from eggs laid in June. In the British Museum, six adult males of *M. g. ruwenzori* from northern Nyasaland and the Mukutu Mts., eastern Northern Rhodesia, have wing 109–112, culmen 26–29 mm. Another male therein has wing 101, culmen 21 mm. It also lacks any red on the abdomen, and is a duller olive than the adults. It is labelled "Songwe, October", and is probably from an egg laid in August.

The foregoing data suggest that this species has an unusually early breeding season, up-to-date egg-laying records by months for other species of Picidae for the Rhodesias and Nyasaland (Southern Rhodesian records supplied by R. K. Brooke and C. J. Vernon) being as follows:

	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Campethera benetti					4	16	8	1
„ *abingoni*					3	3	1	
„ *caillauti*					1	2		
Dendropicos fuscescens	1	2	1	3	12	11	1	1
Thripias namaquus		1	2		2	5	2	1

Benson (*Breeding Seasons of Birds in the Rhodesias and Nyasaland*, in MS.) has found that in general there is no difference in the seasons of evergreen forest species and of those of the same family living in open woodland. But in the Picidae, *M. griseocephalus*, much more markedly associated with forest than the other five species, apparently breeds generally earlier than they do. *C. bennetti* and *T. namaquus* are not known to occur in this habitat at all.

Turdoides jardinei kirki (Sharpe)

Coll. C/6, 17th October, 1961, Fort Jameson District at 13° 30′ S., 32° 30′ E. (V. J. Wilson). The male parent was also collected, and has been examined by C. W. B. Eggs typical, smooth, fairly glossy, blue; size 23.1 x 18.0, 24.9 x 18.2, 23.0 x 18.1, 23.0 x 18.1, 23.4 x 17.9, 24.3 x 17.8 mm. This is an unusually large clutch, but the size may be accepted as correct, since Wilson inspected the nest and its six eggs on at least three occasions before collecting them and the parent. All six were in a very advanced state of incubation. R. K. Brooke informs us that of 79 clutches taken in Southern Rhodesia, six were C/1, fourteen C/2, fifty-three C/3, and six C/4.

Cichladusa arquata Peters

J. M. C. Uys found a nest containing two eggs (not collected) under the eaves of his house at Moshi, Kafue National Park, 14° 24′ S., 26° 10′ E., 15th November, 1961. It was lined with grass, and some pieces of cloth and strippings from sisal rope used in the binding of the thatch of his office. The eggs were plain white, size approximately 25 x 16 mm. There were a few *Hyphaene* palms, with which this species is so often associated, in the vicinity, but none of them more than six feet high. Association with human dwellings is also reported by Benson (Nyasaland Check List, 1953). Although Uys had spent much of his time for the two previous years at Moshi, during which the house and office were built, it was not until 8th November, 1961 that he ever noticed this bird there, when two pairs were seen.

M. S. Slogrove observed a nest containing two young about one week old under the eaves of a building in a game-viewing camp for tourists at Mfuwe, by the Luangwa River at 13° 03′ S., on 6th December, 1961. The young were fed with caterpillars by both parents. The construction of this camp was started in 1959, and completed in 1960.

Cisticola galactotes subsp.

Coll. C/3 fresh, 9th December, 1961, Sihole, Kalabo District at 15° 19′ S., 22° 34′ E. (M. A. Traylor). Eggs glossy, cream; very thickly and finely freckled all over with brown-madder on underlying pale violet: size 15.0 x 12.3, 15.2 x 12.3, 15.8 x 12.3 m.m The subspecies in this locality is probably *C. g. schoutedeni* White, see Benson (*Bull. Brit. Orn. Cl.*, 80, 1960: 111), but this is being investigated by Traylor himself, who has collected a long series of specimens of this species in the Kalabo District generally. There is no question of these eggs being of *C. pipiens*, since Traylor tells us that whereas *C. galactotes* was common at Sihole, *C. pipiens* was not found there at all. The eggs are typical of *C. g. suahelica* Neumann. We are unaware of any eggs of *C. g. galactotes* (Temminck) being other than immaculate terra-cotta.

Malaconotus blanchoti hypopyrrhus Hartlaub

Coll. C/3 fresh, 14th September, 1961, near Lusaka (R. V. Wood). Eggs smooth, with some gloss; cream with faint pinkish tinge, boldly but very sparingly marked light raw umber, on underlying blotches or coalescences of light grey (all markings with a tendency to concentrate around or at top of large end); size 29.5 x 21.5, 29.4 x 20.4, 30.9 x 20.4 mm. Although this clutch was not taken in the vicinity of a dwelling house, C. R. S. P. has a record of a nest in a hedge in the centre of Broken Hill; and in Uganda, in the grounds of Makerere College, Kampala, and another at a County Headquarters. It seems that this species is attracted to some extent to human settlements.

Anthreptes anchietae (Bocage)

Coll. C/1 fresh, 17th April, 1961, Serenje (C. W. B.). Egg smooth, without real gloss; off-white, with a narrow wreath of sepia, bunting-like scribblings and spots, on a similar wreath of underlying ashy; size 18.3 x 11.8 mm. The nest was in the top of a *Pterocarpus angolensis* tree, about 20 feet above the ground. A. Angus reports that it is composed mainly of flowers of *Protea* sp. and the hairy ovaries of *Faurea saligna*, bound together mainly with the rachids of the leaf of some papilionaceous plant such as *Indigofera* sp. and the awns and glumes of the grass *Loudetia superba*. There can be no doubt about the identification of the bird, as a good view was obtained of one of the parents as it left the nest. For the only previous description traced of the eggs, see Benson (*Bull. Brit. Orn. Cl.*, 71, 1951: 8). This earlier clutch is very similar.

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A new race of the Spotted Munia, *Lonchura punctulata* (Linn.)

by A. HOOGERWERF

Received 26th January, 1962

When comparing all adult specimens belonging to the subspecies *fretensis* present in the Bogor Museum (18 skins) with a corresponding series of *nisoria* from Java* I find it impossible to separate a sufficient percentage of birds belonging to the former subspecies from those of the latter, though seen in a series *fretensis* might be a trifle duller on the under parts. The population of *Lonchura punctulata*, living on the island of Bawean (between Java and Borneo), however, differs from both *fretensis* and *nisoria* because the brownish edges on the feathers of the under surface are distinctly lighter and also average narrower, giving those parts a paler appearance, whereas the chestnut-brownish area on the chin and throat does not extend so far downward as in both other races. And finally, the white on the under parts covers a larger area. Moreover Bawean birds average lighter above when comparing old skins of the different subspecies, collected at about the same timee, specially on the lower back and upper tail-coverts. The tint on the sides of the head and the neck averages lighter.

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* In accordance with Kenneth C. Parkes[1] the subspecific name for Javan birds should be *nisoria* (Temminck) instead of *punctulata* (Linnaeus).

In order to demonstrate the similarity between *nisoria* and *fretensis* and the differences between both races and birds obtained on the island of Bawean, I may point to the following results, after comparing all eight adult Bawean birds with 18 *fretensis* and 23 *nisoria*, mixed together.

When separating the ten skins having the smallest quantity of brown on the chin, throat and foreneck there are six out of the eight Bawean birds among them, three of the 18 *fretensis* and only one of the 23 *nisoria*.

Separating ten birds having the dullest under parts we again have six skins from Bawean, three of *fretensis* and only one of *nisoria*,

Selecting ten specimens being darkest brown on the chin and throat area, we pick out only one skin of Bawean, three of *fretensis* and six of *nisoria*.

Looking for 15 skins which have the most white on the lower under surface we find all eight Bawean birds, six *nisoria* and only one *fretensis* among them.

And when we separate the ten skins showing the more elongate markings in the plumage of the under parts, indicated in the diagnosis of the subspecies *fretensis*, we select only one bird from Bawean, five of *fretensis* and four of *nisoria*.

From the above it seems evident that there is not much reason to maintain *fretensis*, not on account of the characters mentioned by Boden Kloss[2] and not for any other difference. All characters mentioned in the diagnosis of *fretensis* seem to have only an individual significance and cannot be considered as being of subspecific value.

Therefore this Bawean Island material seems closer to the subspecies *blasii*, *sumbae* and *fortior* and perhaps also to *particeps* from Celebes than to birds originating from Java and Sumatra, though Stresemann[3] suggests that *blasii* should show darker markings below but that is not so in the two skins now in my hands. Our opinion concerning the resemblance of Bawean birds to those three subspecies is based on the rather scanty material at present in the Bogor Museum and on the particulars published by Rensch[4] about *fortior*. After reading Rensch's remarks: "Die Rasse *fortior* ist von *nisoria* nicht nur durch die bedeutendere Grösze zu unterschieden, *sondern auch durch die geringere Melaninpigmentierung der Unterseite: das Braun der Kehle zieht sich nicht so weit auf die Brust herab und die weiszen Partien der Brust-und Bauchfedern sind ausgedehnter*" (the italics are mine), it is evident that the Bawean representative of this species seems rather similar to *fortior*, whether we examine old material or freshly collected birds, though one bird has some green on the upper tail-coverts, a quite unknown feature in Bawean birds.

On account of this similarity it would seem justifiable to include Bawean Island within the range of the subspecies *fortior*, but this last race is decidedly larger than birds from Bawean which in size exactly agree with birds belonging to *fretensis* and *nisoria*, when not a trifle smaller still. The size-differences with *fortior* are evident when comparing our measurements with those published in the diagnosis (ten *fortior:* wing 53–55, averaging 54 mm.). Though the subspecies *blasii*, *sumbae* and *particeps* seem rather similar to *fortior* on the under parts, they are greenish-yellow on the upper surface of the tail, which perhaps is also the case in certain skins of *fortior* but not in birds from Bawean Island.

Comparing the 14 juvenile birds we obtained on Bawean with as many young birds of *fretensis* or *nisoria* it is also in this case quite easy to pick out all Bawean specimens because they are much paler on the under parts, especially on the breast, throat and chin, whereas the upper parts seem to average less brown. Perhaps this last difference may be seen as a consequence of post-mortem changes, but I do not believe that this is also the case in the colour of the under parts. The only juvenile skin of *blasii* I could study, is also darker below than in the average Bawean bird.

When mixing old skins with recently collected material from Bawean it seems justifiable to disregard any post-mortem change in the plumage, though wings and upper surface seem to average a trifle darker in fresh skins. Though nearly all Bawean skins were preserved in formalin, this seems of little importance regarding the differences indicated above because we find the same differences in dry preserved skins and in those collected in 1928 which almost exactly agree with our fresh ones.

All adult specimens collected by me on Bawean Island had the ovarium small to well granular and the testes of the males were small.

Therefore there seems sufficient reason to separate Bawean's population of *Lonchura punctulata* from all other subspecies known from areas within the boundaries of the Indonesian Archipelago under the name:

Lonchura punctulata baweana subsp. nov.

Types: ♂ Mus. Zoöl. Bogor, No. 5562, 8th May 1928, South Bawean (Java Sea); leg. P. F. Franck.

♀ Mus. Zoöl. Bogor, No. 22.957, 11th June 1954, Sangkapura, Bawean; leg. A. Hoogerwerf.

juv. ♂ Mus. Zoöl. Bogor, No. 22.955, 5th June 1954, Mt. Bulu, Bawean; leg. A. Hoogerwerf.

ad. ♂♀ In size agreeing with the subspecies *nisoria*, *fretensis*, *blasii*, *sumbae* and *particeps*, but smaller than *fortior*, not only in the wing but also in tail measurements.

On account of the lighter brown of the dark markings on the feathers of the under parts and the narrow edges to the feathers which form these markings, together with the smaller area of chestnut on the chin and throat, *baweana* is at once different from *nisoria* and *fretensis*. The feathering on the sides of the head and the neck averages a trifle lighter in *baweana* as is the case in the plumage of the upper surface.

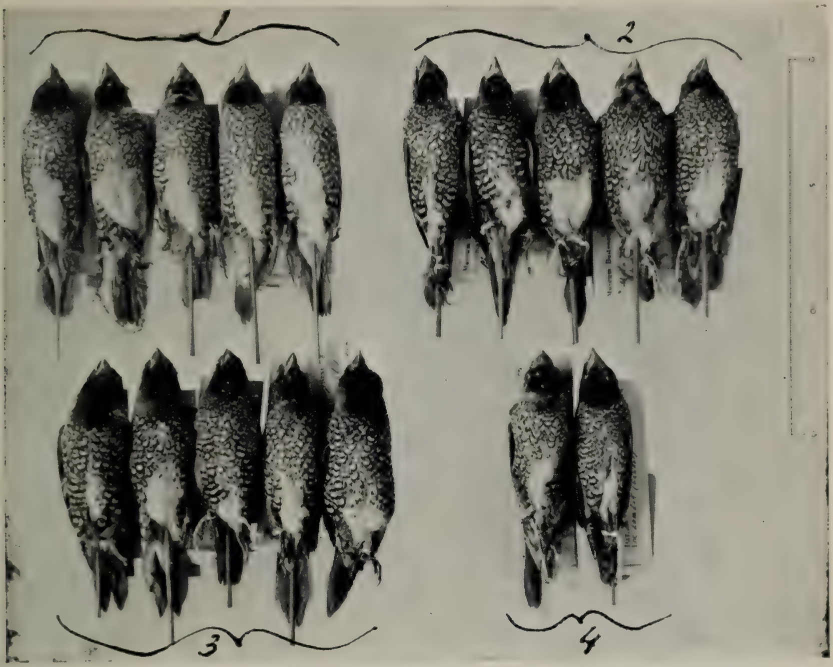
From the subspecies *blasii*, *sumbae* and *particeps*, *baweana* differs by the lack of any greenish tint on the upper side of the tail and from *fortior* because of its smaller size (wing-average: 54 mm. in *fortior* (males and females) against 52 mm. in adult ♂ and 51.17 in adult ♀ of *baweana*).

The juveniles are separable from those of the subspecies *nisoria*, *fretensis* and *blasii* on account of their being paler below, especially on the breast, throat and chin.

Measurements: (*in mm.*)

♂♂ Wing; *nisoria:* 52, 52, 53, 53, 53; *fretensis:* 51, 51, 52, 52, 53; *fortior:* 52; *particeps:* 48, 50; *baweana:* 52, 52;

Tail; *nisoria:* 34, 37, 37, 38, 40; *fretensis:* 35, 37, 38, 41, 42; *fortior:* 37; *particeps:* 28, 38; *baweana:* 38, 38;



Lonchura punctulata subspp.
1. *Lonchura punctulata baweana* subsp. nov. (Bawean Island)
2. ,, ,, *fretensis* (Sumatra)
3. ,, ,, *nisoria* (Java)
4. ,, ,, *fortior* (Smaller Sunda Islands)

Culmen; *nisoria:* 9.2, 10, 10, 10.8, 11.9; *fretensis:* 11.2, 11.2, 11.8, 11.9, 12; *fortior:* 11, 10; *particeps:* 10, 10; *baweana:* 11, 11.1.
Max., min. and average measurements:

	nisoria	*fretensis*	*fortior*	*particeps*	*baweana*
Wing:	52–53	51–53	52	48, 50	52, 52
	52·60	51·80		49	52
		Rensch[5]:	53–55		
		(10♂♀)	54		
Tail:	34–40	35–42	37	28, 38	38, 38
	37·20	38·60		33	38
		Rensch[5]:	38–39		
		(3♂)	38·67		
Culmen:	9·2–11·9	11·2–12	11, 10	10, 10	11, 11·10
	10·38	11·62	10·50	10	11·05

♀♀ Wing, *nisoria:* 49, 50, 51, 52, 53; *fretensis:* 50, 51, 51, 52, 52; *fortior:* 53, 55; *blasii:* 51, 51; *particeps:* 51; *baweana:* 50, 50, 51, 52, 52, 52;

Tail, *nisoria:* 32, 35, 40, 40; *fretensis:* 32, 33, 35, 41, 42; *fortior:* 40, 43; *blasii:* 34, 37; *particeps:* 35.5; *baweana:* 35, 35, 37, 37, 37, 38;

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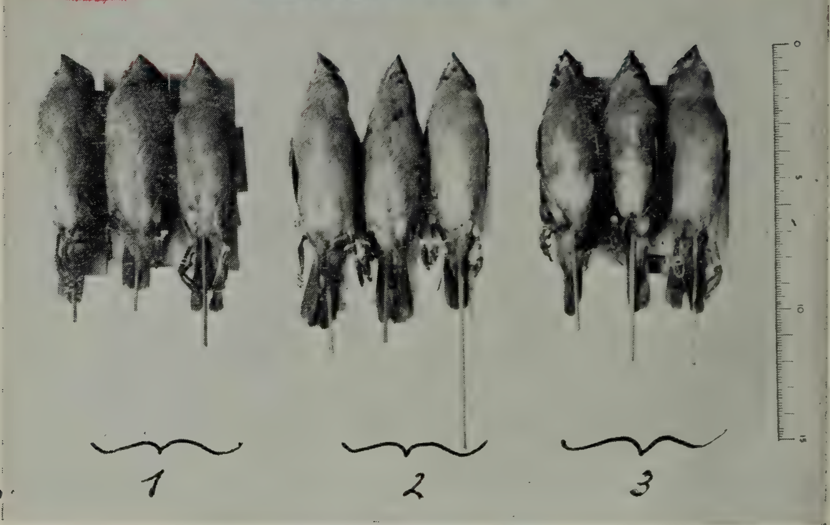

Lonchura punctulata subspp.
(juveniles)

1. *Lonchura punctulata fretensis* (Sumatra)
2. „ „ *baweana* subsp. nov. (Bawean Island)
3. „ „ *nisoria* (Java)

Culmen, *nisoria:* 9.1, 10.1, 10.2, 10.5, 11.6; *fretensis:* 10.5, 11, 11.4, 12.1, 12.6; *fortior:* 11.2, 11.2; *blasii:* 10, 11; *particeps:* 10.50; *baweana:* 10.2, 10.4, 10.5, 10.5, 11.1, 11.1.

Max., min. and average measurements:

	nisoria	*fretensis*	*fortior*	*particeps*	*blasii*	*baweana*
Wing:	49–53	50–52	53, 55	51	51, 51	50–52
	51	51·20	54		51	51·17
Tail:	32–40	32–42	40, 43	35·50	34, 37	35–38
	36·75	36·60	41·50		35·50	36·50
Culmen:	9·1–11·6	10·5–12·6	11·2, 11·2	10·50	10, 11	10·2–11·1
	10·30	11·52	11·20		10·50	10·36

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[1] Parkes, Kenneth C. Taxonomy and Nomenclature of three species of *Lonchura* (Aves: Estrildinae), *Proc. U.S. Nat. Museum*, 108, 1958, pp. 279/93.

[2] Boden Kloss, C. An account of the Sumatran birds in the Zoological Museum at Buitenzorg with descriptions of nine new races, *Treubia*, 13, 1931, p. 363.

[3] Stresemann, Erwin. Die Formen von *Munia punctulata* (L), *Nov. Zoölogica* 19, 1912, p. 317.

[4] Rensch, B. Die Vogelwelt von Lombok, Sumbawa und Flores, *Mitteilungen aus dem Zoöl. Museum in Berlin*, 16, p. 598.

[5] Rensch, B. Neue Vogelrassen von den kleinen Sunda-Inseln, *Orn. Monats Berichten*, 36, 1928, p. 7.

CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

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CORRESPONDENCE

Other correspondence should be addressed to the Hon. Secretary, Dr. J. G. Harrison, "Merriewood", St. Botolph's Road, Sevenoaks, Kent.

DINNERS AND MEETINGS FOR 1963

19th February, 19th March, 16th April, 21st May, 17th September, 15th October, 19th November and 17th December.

(The October or November meeting will be held jointly with the B.O.U.)

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BULLETIN
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The six hundred and fifth meeting of the Club was held at the Rembrandt Hotel, London, on 19th February, 1963.

Chairman: MAJOR-GENERAL C. B. WAINWRIGHT

Members present: 24; guests 9; total 33.

Dr. J. G. Harrison exhibited and commented upon a Curlew which had a congenital deformity of the maxilla.

This bird will be illustrated and described in the *Bulletin.*

Mr. W. E. Eales, Warden of the Blakeney Point Reserve, Norfolk, showed a film of some of the birds of that area, sequences of Brent geese and the terns being particularly good. He also showed a film of the Borough Fen decoy.

Mottled plumage in the genus *Corvus*, its causation and relationship to fundamental barring

by C. J. O. HARRISON

Received 15th September, 1962

INTRODUCTION

While examining skins in the collection of the British Museum (Natural History) for evidence of melanic schizochroism I had occasion to study the skins of young Rooks, *Corvus frugilegus*, showing abnormally light markings on the feathers. These birds had formed part of the data for a series of papers by J. M. Harrison (1949, 1950, 1957a, b) and Sage (1956a, b, c, 1957a, b, 1958) describing such mottled plumages in the Rook, *C. frugilegus*, Carrion Crow, *C. corone*, and Jackdaw, *C. monedula.* It was suggested in these papers that the markings were of genetic origin and evidence of a reversion to an ancestral mottled pattern in the Corvidae. I considered that the evidence shown by these skins was not wholly in accord with these conclusions and re-examined them accordingly.

DESCRIPTION OF SPECIMENS

The skin of a juvenile, *C. frugilegus* from Waith, Lincolnshire (a), collected

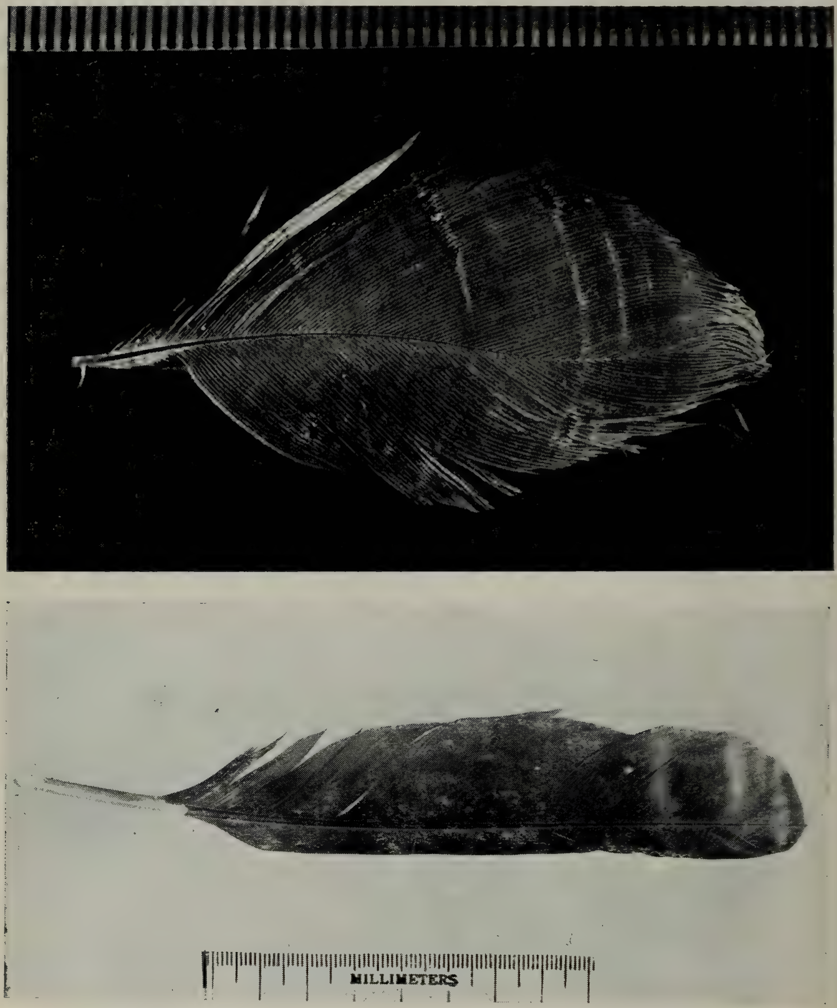

FIG. 1. Feathers from specimen (A). Enlarged covert feather showing "hunger-traces" and primary showing white bars

in May 1902 (B. M. No. 1938. 3. 19. 112) was considered to show important evidence. This had the remiges and rectrices partly in quill. The contour feathers were greyish in colour on the rachis and towards the tips, and of a loose fluffy texture. The feathers of the wings and tail were almost normal, but marked with a few narrow transverse greyish bars which became almost white on the innermost web of the inner primaries. Most of these inner primaries showed clearly three pale subterminal bars, close together, and most conspicuous on the inner web, less easy to see on the outer web where they appeared obscured by iridescence. About a centimeter nearer the proximal end of the feather was another pale bar. These bars were less well marked on the coverts and one of the greater coverts of the scapular region showed no pale bars but significantly revealed a series of "hunger-traces" (also referred to as fret-marks, or fault-marks) occupying the same relative position on the feather as did the pale bars on the primaries (Fig. 1). On this same feather there was another "hunger-trace" nearer the base of the feather. This was not apparent as a pale bar on the remiges but did appear as a modified "hunger-trace". The bars were less apparent on the outer primaries and the lesser coverts. They were absent from the tail, but the corresponding "hunger-traces," although slight, could be seen on some feathers. Some of the feathers which grow later, the axillaries and under wing-coverts, were quite normal in appearance.

Another specimen of the same species from Grainsby, Lincolnshire (b), May, 1920 (B. M. No. 1938. 3. 19. 115) showed a single whitish transverse bar on most feathers. The secondary feathers showed a number of "hunger-traces" as well. On most of the wing feathers this pale bar was about ½ mm. below the tip of the feather. In this specimen the tail feathers, which were only half out of quill, appeared normal, as did feathers on the under side of the wing, the axillaries, the lesser coverts, and the lower mantle. Other contour feathers were of a loose fluffy texture like those of the first bird, and also showed a single transverse white bar. Another specimen (c), also from Grainsby, June 1923 (B. M. No. 1938. 3. 19. 114) was very like the previous bird. The contour feathers were, however, whiter and gave the body a greyish appearance. Most of the feathers of wings and back showed a whitish subterminal bar with a fainter bar nearer the tip, this double bar being visible only on the larger feathers. The inner webs of the innermost primaries showed in addition a series of three well spaced bars, about a centimeter apart, along the length of the feather. These bars became progressively less apparent on the outer primaries. Many feathers showed series of "hunger-traces", although these did not necessarily coincide with these whitish bars. There was again evidence of later normal feathering. There was also a wing of another individual (d) from Ashwell, Baldock, Herts, May, 1946 (B. M. No. 1946. 35. 1). This showed a single whitish bar which was almost terminal on the primaries and on the secondaries, from some of which it had worn away. It was more subterminal on the coverts, and the lesser coverts were normal, as were the axillaries and the under wing-coverts.

A mounted specimen of the Raven, *C. corax*, in the Museum collection had completely abnormal plumage, being a dilute partial-albino. The feathers of the lower belly, forehead, and throat were loose and fluffy in appearance. The pigmented portions of the plumage were greyish-brown, the feathers being well pigmented at the tips and becoming progressively paler. The innermost secondaries showed a transverse pale bar across the middle of each feather with a well marked "hunger-trace" on the distal edge of it.

In addition to the above birds Dr. J. M. Harrison kindly loaned me specimens from his collection showing barred plumage. These consisted of six specimens of *C. frugilegus* all from Ashwell, Hertfordshire, and a specimen of *C. corone* from Sevenoaks, Kent. All appeared to be young birds. The first (e), collected 13th May, 1950 had only wings and tail preserved. These showed a much more normal plumage than that of the birds already described, and the feathers had a marked iridescent gloss. There was a brown bar, partly masked by iridescence, across the secondaries, about 30 mm. below the tip, and a less obvious bar in a similar position on the primaries. There was also a similar bar on the greater and median coverts but the lesser coverts appeared normal. On the rectrices the bar was present but faint. A single wing of another specimen showed a pale bar midway along the secondaries, but this became very faint on the primaries and coverts. The wings and tail of a third individual (f) taken in May 1950 showed a prominent whitish bar on the remiges, becoming faint towards the outermost primaries, and similar bars on the coverts. The position of the bar in this case was relatively near the base of the feather. The tail showed a pale bar midway on the partly grown feathers. A skin (g) taken 7th May, 1949 showed a condition similar to that of the museum specimens, with loose-textured contour feathering, and almost all the feathers marked with a white terminal bar except the rectrices which were only half-grown. Another skin (h) taken 12th May 1950 had the same loose-textured contour feathers but with more normal feathers appearing at the lower edge of the mantle. Most of the feathers showed a white bar similarly placed to that of (e), the bar on the rectrices being more distally placed to that of the remiges, the former being later in growth. A final specimen of this species taken 5th May, 1950, had black contour feathers marked with a brown sub terminal bar. On the remiges, rectrices, and greater coverts this bar was not apparent but its position was indicated by a faint "hunger-trace" that was little more than a change in the thickness of the feather structure. On the rectrices its position was almost terminal.

The specimen of *C. corone* taken 30th Dec., 1959 has normal contour feathers but almost all the feathers of wings and tail were brownish and showed some loss of iridescence. The rectrices showed a series of three "hunger-traces" towards the tips, in the same position on each feather, and all had whitish bases. The remiges showed a broad whitish bar towards the base of the feather, more marked on the inner web. On some feathers the bar had a well marked "hunger-trace" on the distal edge of it which in places had caused some of the barbs to break off short. Presumably as a result of the rate of growth the bars appeared in a slightly different position on each primary, producing an arc of pale markings across the feathers. From the coincidence of position in "hunger-traces" on different feathers in wings and tail, indicating a simultaneous growth of such feathers, I was of the opinion that this was a young bird.

CAUSATION OF MARKINGS

There are two points to be noted concerning the variant plumages described above. One is the apparently random position of the pale bars in relation to the feather (Fig. 2), the other is the apparent relationship between such bars and "hunger-traces". The causation of "hunger-traces" is well-known and has been recognised by bird-keepers, particularly falconers who were dependent on the condition of the bird's plumage, for a very long period. It was known that even a short period of starvation, during the time when feather growth was taking place, would result in a narrow transverse zone of malformed or weak structure on the feather, and that such a feather was liable to break off along this line of weakness. Riddle (1908) made a careful study of "hunger-traces", or "fault-bars" as

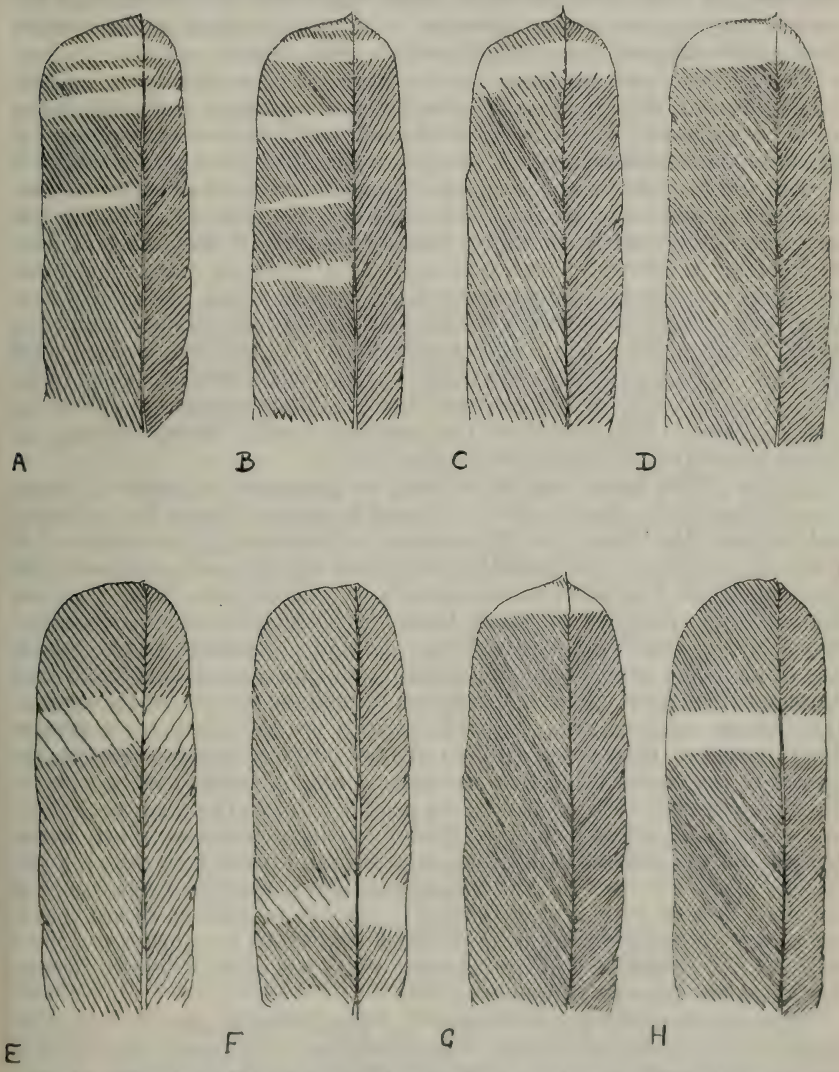

FIG. 2. Sketches of single inner primaries from specimens of *C. frugilegus* to show variation in position of bars

he called them. He found that they could be produced experimentally by reducing food, by feeding chemicals which affected nutrition or reduced blood pressure and hence the blood supply to the feather, or by mechanical damage to the feather germ; and considered them normally produced by poorer nutritive conditions. He also found that a temporary loss of melanin pigment was often associated with the traces, that a zone of unpigmented structure might occur on the proximal side of a well-marked trace, and that the factors producing these traces might, in some circumstances, produce unpigmented zones on feathers instead. This agrees with the evidence from the skins which have been examined, where "hunger-traces" are replaced by unpigmented bars on some feathers, and where traces show adjacent proximal pale bars in some cases.

There is also evidence from other sources. D. Goodwin (pers. comm.) bred a number of Jays, *Garrulus glandarius*, in captivity, and some young were hand-reared. With the earlier broods difficulty was experienced in providing natural food, and the first plumage of the young birds exhibited barring of this type. On one occasion a young bird which had begun to show evidence of transverse barring on the growing feathers was placed in the nest of wild Jays while its sibling was hand-reared. It was found that the bird placed in the nest, which presumably was receiving natural food, did not show barring on those portions of the feathers which grew subsequent to its being placed there, while the hand-reared bird showed barring on the entire length of the feather. Such captive birds moulted into normal adult plumage with no evidence of barring. Yarrell (1843) recorded an example of *C. frugilegus* with barred plumage which moulted into normal plumage, and Mayaud (1950) described two specimens with barred plumage in which normal adult feathers were appearing.

Rollins (1959) found that by offering an unnatural or deficient diet to young Blackbirds, *Turdus merula*, he could produce a grey bar on black tail feathers. He found that by persisting in such feeding he succeeded in producing feathers with normally pigmented tips but with grey proximal portions. Such feathering is well-known to aviculturists, being prone to appear in the plumage of young birds, particularly those whose normal insect diet it is difficult to supply in adequate quantities under captive conditions. It is usually lost during the moult into adult plumage but may reappear there if the diet is still deficient. It is likely to be most apparent in the remiges and rectrices, possibly because in such feathers a greater length tends to be exposed, while only the terminal portion may be apparent in the contour feathers, the paler proximal portion being hidden. J. M. Harrison (1957b) illustrates an example of this in *C. corone* and *C. monedula*, both young birds. The former species seems particularly prone to such defects, especially in urban or suburban areas where the principle feeding places are often rubbish tips, and the diet is likely to be abnormal or deficient. Where normal melanisation is reduced to such an extent that it only occurs towards the tip of each feather the whole plumage may have a pale spotted appearance. The plumage of the aberrant *C. corax* already described has this appearance.

There appears to be good evidence that a period of insufficient nutrition, similar to that which gives rise to "hunger-traces" in feathers, may result in an absence of melanin pigments in the portion of any feather grown during that period. If the time of reduced nutrition is sufficiently short the portion of the feather lacking melanin may appear as a pale transverse bar on the feather. Riddle (*op. cit.*) was able to calculate the rate of growth of feathers in some species. He found that the primaries of fowls and pigeons grew at the rate of 4–6 mm. daily. The three pale bars *c.* 3–4 mm. wide separated by dark bars *c.* 1½ mm. width at the distal end of the primaries of the first specimen of *C. frugilegus* suggest that this bird may have suffered three consecutive days of inadequate diet, with a short period of adequate nourishment each day.

Since the absence of melanisation apparent in the light transverse bars is not accompanied by abnormal feather structure as in the "hunger-trace" it seems likely that it represents a period of unbalanced nutrition, rather than of complete absence of food. If we consider the position of pale bars on the feathers, the tendency for such markings to occur at the tip is most noticeable. This suggests that the periods of insufficient nutrition most frequently occur when the growth of the feathers has just begun. Since these are young birds most of the feathers will be growing simultaneously, and this is likely to throw a great strain on the metabolism of the bird. It is a period at which it is most likely that the internal resources available may temporarily fall below a threshold at which normal melanisation can occur.

If these bars are due to nutritional deficiencies occurring at a particular period in feather growth, then patterns which show similar markings on the feathers over a large part of the body are only likely to occur in young birds where most of the feathers will be growing simultaneously. In older birds, if such markings occur, one would expect them to be distributed irregularly over the various feathers indicating the stage of moult at which the deficiency occurred. This would appear to be true in the case of the adult *C. monedula* described by Sage (1957b). Bolam (1912) mentions retention of barred plumage in an adult *C. frugilegus* but does not record if it maintained any symmetry. The remiges, rectrices, and most of the wing-coverts are not moulted in the first autumn but are retained, so that a young bird would show evidence of its earlier plumage in the wings and tail until the following summer. The example of *C. corone* described by Sage (1956a) and of which he received only the wing, could therefore still have been in juvenile plumage, and the same applies to the young birds seen by J. M. Harrison (1957a) in Kent, in winter. The only apparent evidence to the contrary is the description and illustration, in the early nineteenth century, by P. A. Millet, of a single French specimen of *C. frugilegus* which has extensive greyish-white tips to the feathers of wings and tail, but which shows white skin at the base of the bill (J. M. Harrison, 1950). Since this bare skin appears during the first winter and summer, while the flight feathers may be retained until the end of the first summer it is possible that this also was a young bird.

MOTTLED PLUMAGE AND REVERSION

Both Sage and J. M. Harrison, in the papers to which reference has been made, appear to assume that this abnormal plumage is genetic in origin and recessive in character, and that it may represent an "ancestral" plumage of the Corvidae. There does not appear to be any good evidence for this. The phenomenon is one which mainly affects juvenile plumage, and can be shown experimentally to be due to defective nutrition. The patterns created by it are variable, and appear to be due to factors affecting pigmentation of the whole plumage at one particular period in time. There is no evidence that it is passed from one bird to another. Where such plumages occur in captive birds they are lost in subsequent moults. The fact that such plumage peculiarities occur repeatedly in different years at the same rookery does not necessarily indicate that a hereditary factor is present. They could be due to factors present in the food and feeding areas available in the locality, or to individual birds. The individual bird which consistently fails to rear or feed its young properly, year after year, is known to aviculturists. The widespread occurrence of these abnormal plumages in small numbers (Sage, 1958.) does not need any genetic explanation if it is merely an aspect of nutrition. J. M. Harrison (1957b) has suggested that such plumage aberrations are due to inbreeding in a population which has increased considerably in the absence of predation or control. Such factors could, however, equally result in the diminution or impoverishment of food supplies, with a need to utilise the less natural types of food made available by man. Lack of predation would also enable poorly nourished individuals with defective plumage to survive.

Some of the individuals referred to by Sage (1957a, 1956b) as "mottled" appear from the description to be probably either dilute (chlorochroic) or non-phaeomelanic schizochroic individuals.

MOTTLED PLUMAGE AND FUNDAMENTAL BARRING

While these abnormal plumages are not a reversion to an ancestral plumage pattern of the Corvidae they are of interest in their relationship to "fundamental barring" and the derivation of plumage pattern in general. Fundamental barring is the name given to the pattern of narrow transverse dark and light bars that is apparent on some of the feathers of many individuals in a great number of species where such barring is not a characteristic part of the plumage pattern. Such barring appears to be peculiar to feathers containing melanins, including those where such melanins are concealed by structural colours or iridescence. The widespread occurrence of such barring was recognised by Whitman (1907) and Riddle (*op. cit.*). It was commented on by Lowe with regard to British (1941) and Asiatic birds (1942) and examined more fully by Glegg (1944) under the name of "latent" or "subordinate" barring, although neither appeared to be aware of earlier work on the subject. Glegg examined four specimens each (adult and juvenile, males and females) of as many species on the British List as he was able with a view to discovering how widespread this character was. In all he examined 935 skins and found evidence of fundamental barring on some part of the plumage of every one. He also noted the association between such barring and the presence of melanin pigments, but drew no conclusions from it.

Riddle (*op. cit.*) found that by reducing blood pressure in birds he could produce "hunger-traces" or whitish areas on a feather. He found that there was a daily rhythm of blood-pressure fluctuation, with low pressure from 01.00–05.00 hrs. He also found that each pair of light and dark fundamental bars appeared to constitute a day's growth for the feather, and he deduced that this fundamental barred pattern represented a daily rhythm of melanin deposition, with reduced melanisation in the early hours of the morning resulting in the presence of a paler bar, narrower than the adjacent dark one. The light bars on the plumage of corvids offer additional confirmation of the idea that a temporary reduction of melanin will produce a barred pattern comparable to that found as a fixed pattern in the plumage of other birds.

There is additional evidence for the apparently inadvertent production of alternate layers, which differ in pigmentation and composition due to a daily rhythm, in the physical functioning of the body of the bird. This occurs during the deposition of yolk within the follicles of the ovary of the female. If the feeding of foods containing fats and carotenes to domestic poultry is limited to a short period of the day, or if the diet is deficient in these, then a stratum of so-called white yolk, lacking both pigments and fats, is laid down during the early hours of the morning, and the resultant egg-yolk shows a series of concentric layers of white and yellow yolk indicating the period of formation. Since the period when white yolk is produced is relatively short, a segment of the yolk will show narrow transverse pale bands on a darker background. We have here another example of a daily rhythm of pigment deposition resulting in the production of an "accidental" barred pattern.

The normal method of melanin deposition appears to produce this barred protopattern in the plumage. If there was selective pressure for the production of a patterned plumage a barred pattern produced by pigment variation would already be present. This pattern is more apparent in some individuals than in others, possibly due to slight physiological differences. If these physiological differences are genetic in origin then there is already the basis for a genetically fixed, barred pattern. Both Whitman (*op. cit.*) and Riddle (*op. cit.*) were of the opinion that plumage patterns in birds were derived from fundamental barring. Recent studies of plumage pattern (Harrison, 1963, and in progress) show that more complex patterns on feathers appear to be derived from simple barred patterning of the fundamental type, and this would seem to lend support to the idea that this fundamental barring based on a daily rhythm of fluctuation in melanin deposition may be the basis of plumage pattern in birds. The abnormal patterns described earlier are the result of the production of similar bars due to a reduction of blood-pressure or an impoverishment of the food supply, which produces a temporary exaggerated imitation of this normal process.

ACKNOWLEDGEMENT

I am very grateful to Dr. J. M. Harrison for the loan of specimens showing mottled plumage.

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A substitute name for the Luzon race of *Copsychus saularis*

by KENNETH C. PARKES

Received 7th January, 1963

Defying all laws of probability, certain things in this world seem to be particularly unlucky for certain people. It appears that I should in the future avoid at all costs the introduction of a new scientific name bearing the prefix *hetero-*. Recently in this journal (*Bull. Brit. Orn. Cl.*, Vol. 81, p. 33) I had to propose the new name *Orthotomus atrogularis rabori* to replace my *O. a. heterolaemus*, a name whose prior use I had completely overlooked. History now repeats itself, and I find that the name *Copsychus saularis heterogynus*, which I recently proposed for the Luzon subspecies of the Dyal, is also preoccupied, as the genus *Kittacincla* is no longer considered separable from *Copsychus*. I therefore offer a substitute name, as follows:

Copsychus saularis deuteronymus, nom. nov. Replaces *Copsychus saularis heterogynus* Parkes, *Postilla*, no. 67, 1962, p. 3, not *Kittacincla malabarica heterogyna* Oberholser, *Bull. U.S. Nat. Mus.*, Vol. 98, 1917, p. 53, now *Copsychus malabaricus heterogynus* (Oberholser).

Oberholser's use of this name was called to my attention by the recent paper by Hoogerwerf (*Ardea*, Vol. 50, 1962, p. 183), in which doubt is cast on the taxonomic validity of this and several other Oberholser races of *Copsychus malabaricus*.

Notes on birds seen in eastern Aden Protectorate

by I. R. GRIMWOOD

Received 27th October, 1962

The following notes elaborate on the information given in Col. R. Meinertzhagen's *Birds of Arabia*, 1954, whose nomenclature is followed throughout.

I am indebted to Mr. John Williams, of the Coryndon Museum, Nairobi, for the identification of the specimens noted as having been collected.

EXTENSIONS OF RECORDED RANGE

Bar-tailed Desert Lark, *Ammomanes phoenicura arenicolor*—male collected Wadi Mitan (52° 20′ E., 18° 10′ N.) 17th May, where several small parties were seen associating with the commoner *A. deserti*.

Bifasciated Lark, *Certhilauda alaudipes desertorum*—male collected Wadi Mitan (52° 20′ E., 18° 10′ N.) 17th May. Female collected Thamud (49° 50′ E., 17° 15′ N.) 30th April. This lark was seen throughout the area north of the Wadi Hazar–Thamud–Sanau–Habarut track, both on the "jol" and up to two miles within the sand sea, which was as far as observation was carried. It was not, however, noted east of the Wadi Hazar (long. 49° 20′) on the Al Abr–Thamud road.

Geese. A party of unidentified grey geese were seen on sea near Ahwar (46° 45′ E., 13° 30′ N.) 17th April. Geese are reported to visit the neighbourhood of Mukalla in small numbers every year and one shot there in the winter of 1960/61 by Lt.-Col. J. W. G. Gray, of the Hadrami Beduin Legion, was identified by him as *Anser anser*.

Ferruginous Duck, *Aythya nyroca*—single male in company with a pair of Wigeon (*Anas penelope*), three male and seven female Pintail (*A. acuta*) and one male Pochard (*Aythya ferina*) seen on small coastal creek six miles west of Mukalla on 6th April.

BREEDING

Tristram's Grackle, *Onychognathus tristrami*—a pair seen carrying nesting material, sea cliffs east of Mukalla, 22nd April. A large colony occupying cliffs at Maula Mattar appeared to be breeding (23rd April).

Bifasciated Lark, *Certhilauda alaudipes desertorum*—the female collected Thamud, 30th April was ovulating.

Great Grey Shrike, *Lanius excubitor*—a nest containing C/2 found Thamud, 27th April. A third egg added 28th April. The nest, about six feet from the ground in bush in a wadi, consisted of a fairly deep cup made of fine twigs, roots and grass, lined with fine grasses and some hair.

Mourning Chat, *Oenanthe lugens* (presumably of race *boscoweni*)—a pair seen feeding a single fully-fledged youngster on rocks at foot of sea cliffs east of Mukalla, 22nd April.

Blackstart, *Cercomela melanura*—a fully-fledged immature collected Al Abr (47° 15′ E., 16° 10′ N.) 25th April.

MIGRATION DATES

Solitary individuals of the European Swallow, *Hirundo rustica*, Sand-martin, *Riparia riparia* Spotted Flycatcher, *Muscicapa striatus*, and Willow Warbler, *Phylloscopus trochilus*, were noted along the southern edge of the Rub-al-Khali sand sea from longitude 49° to 52° 30′ E. between the 26th April and 23rd May. All showed signs of distress and sought shade within vehicles at every opportunity, giving the impression of being stragglers from a major migration which had passed through earlier. A single specimen of Upcher's Warbler, *Hippolais languida*, was also seen and collected in the Wadi Mitan on the 2nd May.

Barred Warblers, *Sylvia nisoria*, in numbers aggregating perhaps 150, together with a few Olivaceous Warblers, *Hippolais pallida*, were however, seen in a small patch of thorn trees at Al Abr on the 25th April. Specimens of both were collected.

Notes on five species of Iraqi birds

by S. MARCHANT

Received 1st November, 1962

1 *Glareola nordmanni* (Nordm.)

Most recent authors (Meinertzhagen,[8] Taxonomic Sub-Committee,[10] Voous[15]) regard this bird as a colour-phase of *Glareola pratincola* (L.), and personally I believe that this is so, but both forms are customarily regarded as occurring in Iraq. The Taxonomic Sub-Committee[10] says that "*G. nordmanni* has been found breeding in Iraq alongside *G. pratincola*": Meinertzhagen[8] says the same. The Handbook,[16] however, queries this point.

The occurrence of *nordmanni* in Iraq, as far as I have been able to discover, rests on two specimens shot by Pitman at Felluja on 15th April, and mentioned by Ticehurst,[11] and one skin in the British Museum, collected at Khan Nuktar, Baghdad, on 2nd November (a very late date for *Glareola* in Iraq). The other *nordmanni* skins in the British Museum were obtained at Jedda, Najran, south Palestine and Arabi Island in the Persian Gulf in April, July and October. All these specimens were probably birds of passage.

Pitman (in Ticehurst[11]) also had sight records of *nordmanni* between Felluja and Baghdad, at Lake Aggar Quf, and Hindiyah in May, July and August, which is doubtless the basis for supposed breeding in Iraq. McGeoch (pers. comm.) informs me that he had close (3–5 m.) views of three birds at Ramadi on 27th April which he considered to have black axillaries and on 31st May certainly saw one black-winged bird out of eight at Habbaniyah. I believe that all these records apply to birds that could also have been on migration.

It has been recognised that separation of *normanni* and *pratincola* in the field by the colour of the axillaries is not at all easy (Hayman[4]). During three and a half years in Iraq I never satisfied myself that I saw a single *nordmanni* out of hundreds of birds. At one colony of about twenty pairs near Baghdad in 1962 I felt sure that none was present, while I saw none at another larger colony in 1961 (Marchant,[6] Marchant & Macnab[7]).

Clearly there is as yet no definite evidence for breeding of *nordmanni* in Iraq, whether alongside *pratincola* or independently, and in fact the occurrence of *nordmanni* in the country has seldom been proved.

2 *Otus brucei* (Hume)

Peters[9] retains the specific identity of this bird, giving the range as Palestine, Syria, Mesopotamia, Turkestan from south of the Aral Sea to eastern Persia, Baluchistan and Gilgit: and recorded from Sind and several localities in India. Races of *Otus scops* (L.) which may meet or supposedly overlap the range of this bird are *turanicus* in Transcaspia, Bukhara, northern Persia and Armenia; and *pulchellus* in Russia east of Long. 35°E, Caucasus and S.W. Asia, which last winters in the upper Nile Valley, and perhaps elsewhere. Meinertzhagen,[8] correctly in my opinion, regards *brucei* as a race of *scops*. Admittedly it is rather distinct, being essentially drab isabelline with none of the russet markings of *pulchellus* and other races, but such plumage characteristics are relatively insignificant: its behaviour and breeding habits seem to be identical with those of *scops*. The evidence for sympatry of *brucei* with *turanicus* and *pulchellus* is poor.

The matter is blurred by migration since skins of *pulchellus* in the B.M. were taken at various places in the Middle East in March, April and September, even one from Huleh, Palestine in June, but I judge that all of these were migrants. There are also *pulchellus* skins from Teheran, Fars and elsewhere in Iran in May and June, which are much more likely to represent the breeding population. On the other hand the occurrence of *brucei* to the north-east of Iraq is not well established by B.M. skins, there merely being one April bird from the Aral Sea and one from "Asiatic Russia"—both old specimens and, I consider, of doubtful significance.

From my own records (Marchant, [5],[6] Marchant & Macnab[7]) and those of Chapman and McGeoch[1]. (and pers. comm.), I have little doubt that *brucei* is only a breeding visitor to Iraq from March to October. Outside my own dates I have only been able to find one December skin in the B.M. collection and two February skins, one in the B.M. and the other in the Iraq Nat. Hist. Museum. My only record of another race of *scops* in Iraq was on 28th February, evidently on passage. It is unknown where *brucei* winters. Though there seem to be no intermediates between *brucei* and other races of *scops* among the skins which I have seen in London and Baghdad, *brucei* is probably best regarded as a distinct race of *scops;* and I suspect that it does not extend far into Iran as a breeding bird, where it is replaced by *pulchellus*.

3 *Coracias benghalensis* L.

Meinertzhagen[8] regards this bird as a race of *C. garrulus* L., and Voous[15] perpetuates this claim of conspecificity with reservation. In recent years *benghalensis* has extended its range many miles up the Tigris and may now be found slightly north of Baghdad (Marchant[5], [6]), where with little doubt it breeds in small numbers, though no nest has yet been seen. Throughout south and central Iraq the race *semenowi* of *C. garrulus* is a common summer breeding visitor. No hybrids nor interbreeding has been detected. Considering also the distinctly different plumage patterns of the two birds, it seems that they should be treated as separate species, perhaps within a superspecies.

4 *Sylvia melanocephala* (Gm.)

Vaurie[14] maintains the bird known as *Sylvia mystacea* Ménétries as a full species, but many recent authors are inclined to regard it as a race of *melanocephala* (Voous[15], Harrison[3]). Following Dresser[2] who quotes Ménétries' original description of *mystacea*, the distinction of this bird from nominate *melanocephala* and *momus* rests on the blackness of the crown and nape and its contrast with the grey back, and the vinous tinge on the under parts. In *mystacea* the crown and nape are a dull black, not a deep black: this merges into the grey of the back and is not sharply and clearly contrasted: the throat and breast are pale chestnut or dull vinous gradually fading to white on the abdomen. *Mystacea* is also a larger bird than *momus* and, according to Ménétries, has yellow eyelids, whereas in races of *melanocephala* they are dull or brick red, or salmon-pink.

Mystacea is usually said to inhabit S.E. Russia south to the north Caucasus, Transcaucasia, Iraq, Palestine, throughout Iran east to southern and northern Afghanistan, north through Transcaspia to the Aral Sea and so on further east: it migrates through Iraq and Iran to winter in southern Arabia and north-east Africa (Vaurie[14]). *S. momus* lives in Syria and Palestine, being essentially sedentary, while nominate *melanocephala* ranges to

Asia Minor (Vaurie,[14] Handbook[16]), with other races on Cyprus, Crete and in Egypt. I have been unable to find any evidence that the breeding ranges of *momus* and *mystacea* overlap in Syria and Palestine.

I do not consider that the majority of Iraqi skins in the B.M. are particularly close to *mystacea.* One has to be careful of confusion with migrants, since admittedly true *mystacea* moves out of the area north of Iraq in winter, while in central Iraq at any rate no or few individuals of the *melanocephala-mystacea* group are present between November and February (Marchant[5], [6]). Considering the B.M. material collected in or near Iraq from February to October, all skins are only very faintly washed vinous on the under parts, if there can really be said to be any vinous wash at all, except one February skin from Kumait and one March skin from Abadan. These exceptions were probably *mystacea* on passage. In contrast all skins collected in Iran and Transcaucasia in March and April are deeply vinous below. Forty-two other *mystacea* skins, mostly with strong vinous wash, from Arabia and Eritrea were all taken between September and March and were clearly wintering birds. Further there are eighteen Iraqi skins in the collection of the Bombay Nat. Hist. Society, including probably eleven of Ticehurst's[11] collection. Two of these are useless, because of foxing, but the under parts of eleven others are described as white or cartridge-buff with no or very pale and partial vinous wash. The remaining five are described below as vinous or pale vinous. This hardly suggests close affinity of this character with *mystacea* for the majority of Iraqi birds and even the few that could fully be regarded as belonging to *mystacea* were all probably passage birds (one each in February, March, April, September and October).

Admittedly all the Iraqi skins which I have seen and probably those in the Bombay Nat. Hist. Society's collection can be separated from races of *melanocephala* by the duller black head and lack of sharp contrast with the back. Yet on balance of characters and consideration of proved distribution, I cannot see any valid reasons for the continued recognition of *mystacea* as a separate species. Further I have little doubt that with a really comprehensive series of breeding birds it would be found that the Iraqi population is mid-way between *momus* and *mystacea*, being closer to the former in the lack of vinous wash on the under parts and to the latter in their dull crown merging into the colour of the back.

In this connexion some support comes from field observation at Baghdad. There I have looked as carefully as possible at many breeding males without once being able to see any vinous wash on the under side: yet, during the first week of April birds with obvious vinous wash appeared suddenly and as suddenly disappeared. McGeoch (pers. comm.) agrees with me that the summer residents at Habbaniyah appear essentially white below in the field, though he had records of vinous birds in March. Repeatedly I have seen the non-vinous, resident, singing males behave aggressively towards the vinous birds and drive them out of their territories. Presumably these vinous birds are true *mystacea* on northward passage. I may add that as far as I have ever been able to see, the breeding birds at Baghdad have red eyelids.

There are two B.M. skins, collected in January at Mosul by La Personne for Cox and Cheesman and reported on by Ticehurst[12] who identified them, correctly in my opinion, as nominate *melanocephala.* He adds that they were not uncommon at that time and place. The only surprising thing in this is the note of their frequency, because no subsequent authors have recorded any race of *melanocephala* as anything but unusual between November and February. I can well believe, however, that some birds may be in the country at this time and that such could indeed be winter visitors from the breeding range of nominate *melanocephala*.

5 *Turdoides* species

Although originally confused, Ticehurst[11] showed that there were two distinct, but similar species of *Turdoides* in Iraq, *T. caudatus* and *altirostris*. Vaurie[13] gave a further detailed diagnosis. From these accounts *T. caudatus* ranges in various races from India as far north-west as Baghdad and Khanaqin, whereas *altirostris* is confined to Iraq and south-west Iran from Khanaqin and Qasr-i-Shirin to Ahwaz, the lower Karun river and Fao. Both authors, however, stress the different habitat of *altirostris* which is said to be often or mainly in reed beds: in detail neither author records the species between Khanaqin and the Kut-Amara district.

British Museum skins merely add one *caudatus* from Felluja, twenty-five miles west of Baghdad (see also Chapman and McGeoch[1] and Harrison[3]). There are, however, four specimens of *altirostris*, collected by the writer at Baghdad, where Mr. B. E. Allhouse (pers. comm.) also recently got a skin. Chapman and McGeoch[1] and Harrison[3] recorded *altirostris* at Habbaniyah, Saqlawiyah on the Euphrates opposite Habbaniyah, and south of Felluja. McGeoch (pers, comm.) informs me that it was regular at Habbaniyah, and the only species present.

It seems plain, then, that *altirostris* occurs much more evenly and commonly throughout south and central Iraq than one might suppose from Ticehurst[11] and Vaurie,[13] and indeed that it may be the commoner of the two species. It is of further importance to note that it is by no means confined to a reedy habitat. At Baghdad my specimens were taken in an area of market gardens, orchards, palm and poplar thickets, where they must have been plentiful. There were no reeds in the vicinity. Ticehurst[11] records similar habitat at Basrah. In the field I had always assumed that the very common babblers were all *caudatus* and could never satisfy myself that I saw any *altirostris:* but the separation of two such similar birds in the field must be difficult and I attach little importance to my assumption. It is unfortunate that a serious effort was not made to distinguish them, because several nests were found, none of which can now be certainly attributed to either species. Moreover, I consider that previous accounts of the breeding of both species in Iraq (Ticehurst[11]) should be read with caution unless the breeding birds were collected at the same time, as they probably were by Cumming at Fao (*altirostris*).

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On the Yellow-vented Bulbul, *Pycnonotus goiavier* (Scop.)

by A. Hoogerwerf

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Though the difference between the subspecies *analis* and *personatus* is not very distinct in much of the material before me (because there seems to be much overlapping in specimens from the western parts of Java and the islands south of Sumatra) there is no reason to unite them.

It seems justifiable to consider birds from Sebesi and Legundi Islands as *personatus* and those obtained close by Udjung Kulon, on Princes Island and Klapper Island as *analis*, though in some birds of Udjung Kulon the superciliaries are very light which gives rise to the supposition that this territory is of a mixed population.

Birds from Kangean fit well in the small series (recently collected) of *analis* but they average in being a trifle darker above. Comparing fresh material with skins which were stored for a considerable time is of little use because of discolouring, especially on the wings and upper parts.

When comparing our series recently secured on the Karimundjawa Islands with freshly collected skins of *analis* and *personatus* they all differ because of their much darker pure olive-brown upper parts, which, moreover, are less squamated than is the case in both these races, thus resembling *gourdini* known from Borneo.

Though in old material of *gourdini* before me this is only partly the case, Karimundjawa birds seem closer related to this last race than to *analis* or *personatus*, also when comparing the under parts. They are much darker, especially on the sides of the belly and sometimes also on the chest than *analis* or *personatus*, though there are some recently collected birds from Legundi and Sebesi Island which also show these dark flanks but they differ much from Karimundjawa birds on account of the clear white superciliaries and less uniformly coloured upper parts.

On the cheeks this last population is duller than in *analis* or *personatus*, maybe on this point, too, resembling *gourdini*. The superciliaries are very dull and the ear-coverts dark.

When comparing a rather large series of *gourdini* with *analis* and *personatus* Chasen and Boden Kloss[1] concluded that Bornean birds never have the superciliaries pure white but always clouded with brown and that they have the ear-coverts uniformly pale brown. Furthermore these authors found the squamations on the breast especially heavy. These differences also apply to our Karimundjawa birds, though the markings on the breast are not always so heavy. But the most important differences in Karimundjawa birds, when compared with *analis* or *personatus*, the darker and more uniformly coloured upper parts and the much larger area of olive-brown on the flanks were not mentioned by Chasen and Boden Kloss so that our Karimundjawa birds cannot be identical with *gourdini*, not even when they are of the same size, which is not the case, for birds of this latter race are smaller, especially in the tail of the males.

The affinity to *gourdini* could be confirmed when comparing our Karimundjawa material with five skins very recently collected on Borneo, which must belong to this race. They differ, however, from birds originating from the Karimundjawa Islands on account of the more squamated upper parts, the somewhat lighter tint on the under surface, the much clearer superciliaries and the shorter wings and tail which make birds of both these territories at once separable.

Though when comparing our birds special attention was paid to the development of the gonads, this seems not very important because we failed to establish conspicuous differences in the plumage between birds having small or well developed gonads. Post-mortem changes in the plumage are rather important when the skins have been stored for a long time but they still show part of the differences rather distinctly. Skins obtained from the Karimundjawa Archipelago as far back as 1926 and 1930 differ from old skins of *analis* or *personatus* because of their darker and more smooth upper parts. They resemble each other on this point much more than in the small series of old *gourdini* which shows more individual variation. Also on the under surface the larger quantity of olive-brown and the darker grey on the sides of the head remained distinct in those old skins.

Chasen and Kloss[2] examined six males and four females of this *Pycnonotus* secured on the Karimundjawa Islands when this material was not older than six years and it seems strange that they did not notice the differences mentioned above, though they remarked: "Perhaps a little more heavily marked below than *P. g. analis* of Java and therefore tending to approach *P. g. gourdinii* described from south Borneo" . . . I do not think it probable that we have to do with a mixed population, because the collected specimens show a remarkable uniformity, especially on the upper parts.

Though there are no important size differences between Karimundjawa's population of this bulbul and that belonging to *analis* or *personatus;* birds from Karimundjawa average a little heavier in the bill of both sexes and the males show a longer wing and tail. From the measurements given below it is also evident that the males are larger than *gourdini* in all their dimensions.

Gonads of the material examined were small, but some females had the ovarium well granular and two or three males had the testes moderately developed (3–7 mm.). A juvenile male was obtained on 28.10.

I propose to separate the population of *Pycnonotus goiavier* living in the Karimundjawa Archipelago under the name:

Pycnonotus goiavier karimuniensis subsp. nov.

Types: ♂ Mus. Zoöl. Bogor, No. 24. 174, 3rd November 1955, Pulau Mendjangan Ketjil, Karimundjawa Archipelago (Java Sea); leg. A. Hoogerwerf.

♀ Mus. Zoöl. Bogor, No. 24. 179, 15th November 1955, Pulau Kamudjan, Karimundjawa Archipelago (Java Sea); leg. A. Hoogerwerf.

Range: Perhaps all islands belonging to the Karimundjawa Archipelago.

♂♀ Bill averaging larger than in the subspecies *analis*, *personatus* or *gourdini;* wing and tail of the male longer than in birds belonging to these three subspecies.

Averaging less clear white below, resembling more *gourdini* than *analis* or *personatus* but in 30% of the skins from Karimundjawa this character cannot be called convincing.

Much olive-brown on the flanks, especially on the sides of the belly and sometimes also on the sides of the breast. So much brown is an exception in the subspecies *analis* or *personatus*, but perhaps more common in *gourdini*. Not differing in the extent and tint of the yellow on the belly or the under tail-coverts when compared with *analis* or *personatus* but this area seems smaller than in most *gourdini* in which the yellow is also duller.

The dark olive-brown tint of the upper parts of all *karimuniensis*, the less distinct superciliaries and darker ear-coverts make the new subspecies at once different from all freshly collected *personatus* and *analis*, but the superciliaries are a trifle clearer in old skins. Moreover the plumage of the upper surface is much less squamated than in these two subspecies, more resembling *gourdini*, though the old skins of this last race before me do vary much in this respect. Freshly collected skins of this subspecies have decidedly less uniformly coloured upper parts and much clearer superciliaries.

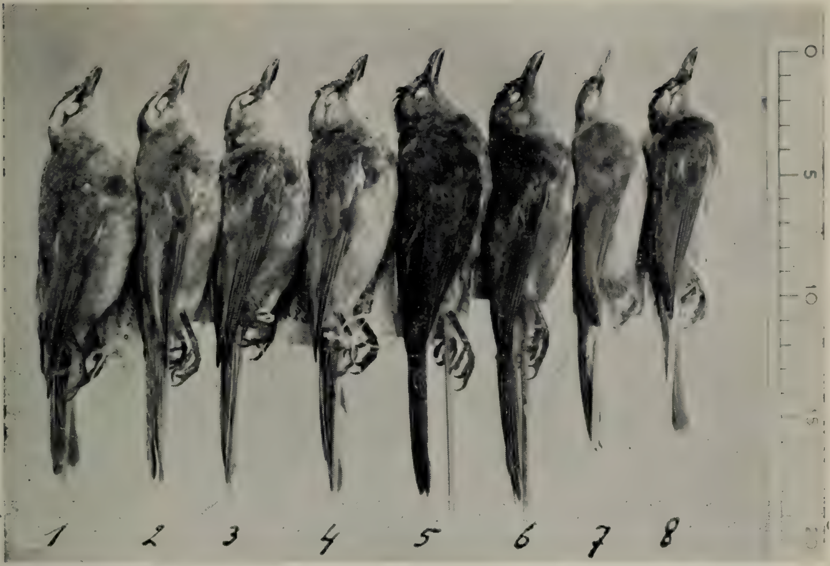
Though the difference in the colour of the upper parts in old material is less distinct, the colour of these parts is darker and more pure olive-brown and kept its smooth character in birds of the new race. In such old material the differences in the under parts remained distinct.

A new subspecies of this bulbul, *Pycnonotus goiavier jambu*, was very recently described by Deignan[3] from Thailand but birds belonging to that race cannot be identical with *karimuniensis* because *jambu* is said to have the "entire upper parts much more richly suffused with ferruginous and the centre of the abdomen rather more sullied with brownish". As no measurements at all are given in the diagnosis, comparison in size with our new subspecies is impossible.

Measurements:

♂♂ Wing: *analis* (Kangean): 87, 88, 90, 91, 91, 91, 92, 92, 92, 93, 93, 94; *gourdini* (Leyden Museum, measured by Junge): 87, 88, 89, 89, 92; *gourdini* (Chasen and Boden Kloss): 84, 88, 88, 88, 89, 89; *gourdini* (Stresemann[4]): 88, 88, 90; *karimuniensis:* 88, 89, 89, 90, 90, 90, 91, 91, 92, 92, 92, 93, 93, 93, 93, 93, 93, 93, 95.

Tail: *analis* (Kangean): 78, 81, 81, 81, 82, 83, 83, 84, 85, 87, 88, 88; *gourdini* (Leyden Museum, measured by Junge): 76, 77, 78, 79, 80;



Pycnonotus goiavier subspp.
1. *Pycnonotus goiavier personatus* (Sebesi Island)
2. ,, ,, *analis* (Udjung Kulon)
3–4. ,, ,, ,, (Kangean Archipelago)
5–6. ,, ,, *karimuniensis* subsp. nov. (Karimundjawa Islands)
7–8. ,, ,, *gourdini* (old skins from Borneo)

gourdini (Chasen and Boden Kloss): 82, 84, 85, 85, 85, 85; *karimuniensis:* 82, 83, 83, 84, 85, 85, 85, 85, 86, 86, 86, 86, 86, 86, 87, 87, 88, 89, 90.

Culmen: *analis* (Kangean): 13, 13.8, 14.3, 15, 15.1, 15.1, 15.3, 15.8, 16, 16, 16.5, 16.5; *gourdini* (Leyden Museum, measured by Junge): 15, 16, 16, 16, 17; *karimuniensis:* 15.2, 15.6, 15.9, 16, 16.2, 16.2, 16.5, 16.6, 16.8, 17, 17, 17, 17, 17, 17.2, 17.2, 17.8.

Max., min. and average measurements:

	analis (Kangean)	*analis* (Java) 10♂	*gourdini*	*personatus* 5♂	Strait Sunda 3♂	Udj. Kulon 2♂	*karimuniensis*
Wing:	87–94 91·17	84–95 90·30	87–92 89	89–92 90·20	90	87, 89 88	88–95 91·60
Chasen and Kloss:			84–89 87·67			Chasen (6♂):	92–95 93·20
Stresemann:			88–90 88·67				
Tail:	78–80 83·42	76–93 84·40	76–80 78	80–84 81·80	80, 83 81·50	80	82–90 85·74
Chasen and Kloss:			82–85 84·33				
Culmen:	13–16·5 15·20	15·2–17·8 16·40	15–17 16	15·1–16·5 15·87	13·8–15·8 14·87	15, 16·8 15·9	15·2–17·8 16·60

♀♀ Wing: *analis,* (Kangean): 86, 86, 87; *gourdini* (Leyden Museum, measured by Junge): 82, 85, 88, 91, 92; *gourdini* (Chasen and Boden Kloss): 80, 82, 84, 84, 86; *gourdini* (Stresemann): 81, 85, 86; *karimuniensis:* 81, 84, 86, 86, 86, 87, 88, 88, 89;

Tail: *analis* (Kangean): 76, 79; *gourdini* (Leyden Museum, measured by Junge): 73, 73, 75, 77, 77, 81; *gourdini* (Chasen & Kloss): 78, 78, 83, 85; *karimuniensis:* 76, 77, 80, 80, 82, 82, 83, 83, 84;

Culmen: *analis* (Kangean): 14.2, 14.8, 15.5; *gourdini* (Leyden Museum, measured by Junge): 15, 15, 15, 16, 17; *karimuniensis:* 14.8, 16, 16, 16.2, 16.5, 16.5, 16.5, 16.7.

Max., min. and average measurements:

	analis (Kangean)	*analis* (Java) 5♀	*gourdini*	*personatus* (Sumatra) 5♀	Strait Sunda 3♀	Udj. Kulon 2♀	*karimuniensis*
Wing:	86–87 86·33	85–90 87·80	82–92 87·60	83–87 84·80	85, 86 85·50	87	81–89 86·11
Chasen and Kloss:			80–86 83·20			Chasen (4♀):	85–88 86·38
Stresemann:			81–86 84				
Tail:	76, 79 77·50	80–86 82·20	73–81 76	75–80 76·80	73, 74 73·50	78	76–84 80·78
Chasen and Kloss:			78–85 81				
Culmen:	14·2–15·5 14·83	15·2–16·5 15·86	15–17 15·60	14–15·50 14·50	13·7, 15 14·35	15, 16.·5 15·75	14·80–16·70 16·15

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[1] Chasen, F. N. and Boden Kloss, C. On a collection of birds from the lowlands and islands of North Borneo, *Bulletin Raffles Museum*, Singapore, 4, 1930, p.66.

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[3] Deignan, H. G. New races of birds from East Asia, *Bull. Brit. Orn. Club*, 75, 1955, p. 130.

[4] Stresemann, Erwin. Vögel vom Flusz Kajan, Nordost Borneo, *Temminckia*, 3, 1938, p. 128.

PURCHASED.

CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

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CORRESPONDENCE

Other correspondence should be addressed to the Hon. Secretary, Dr. J. G. Harrison, "Merriewood", St. Botolph's Road, Sevenoaks, Kent.

DINNERS AND MEETINGS FOR 1963

19th March, 16th April, 21st May, 17th September, 15th October, 19th November and 17th December.

(The October or November meeting will be held jointly with the B.O.U.)

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The six hundred and sixth meeting of the Club was held at the Rembrandt Hotel, London, on 19th March, 1963.

Chairman: SIR LANDSBOROUGH THOMSON

Members present: 29; guests 8; total 37.

Mrs. B. P. Hall addressed the meeting, illustrating her talk with coloured photographs kindly lent by Mr. R. H. N. Smithers, the subject being

Migrants in Ngamiland

From 1st December 1962 to the 10th January 1963 I accompanied Mr. R. H. N. Smithers, the Director of the National Museums of S. Rhodesia, and his wife on an expedition to Ngamiland. One of the objects of the trip was to observe and collect the migrants in the area.

Three main camps were made, the first near Shorobe on the edge of the Okavango swamps, 23 miles north-east of Maun. There was some open water here edged with beds of small *Cyperus* reed and grassland, and, above the level of the July floods, fringed with riverine forest of big trees, including figs and *Hyphaene* palms. The vegetation on the sandy patches of higher land in the swamp area—the permanent islands in the flood season—was predominantly acacia, while away from the swamps it was mopane.

The second camp was on the north bank of the Botletle river 25 miles south-east of Maun. Here the river is about 300 yards broad with extensive beds of tall *Phragmites* reeds. The riverine fringe was narrower than at the Shorobe camp and there were no palms; away from the river the vegetation was predominantly dry thorn, with abundant acacia.

The third camp was on the north edge of Lake Ngami at Sehitwa. The lake was shallow with four or five miles of wide bare muddy shores with only sparse patches of small reeds opposite the camp, but about three miles to the east, there were patches of high, lush (probably annual) weed growing in and around old mealie lands on the edge of the lake. The surrounding country was typical Kalahari thorn bush, more open than the country near the Botletle.

Lake Ngami was richest in migrant water birds, with enormous flocks of waders in which Ruffs and Reeves (*Philomachus pugnax*), Marsh Sandpiper (*Tringa stagnatilis*), and Wood Sandpiper (*T. glareola*) were common, the latter particularly so round the edge of the lake. Greenshank (*T. nebularia*) and Curlew (*Numenius arquata*) were seen, usually in twos or threes. One Little Stint (*Calidris minuta*) was netted, and one Black-tailed Godwit (*Limosa limosa*) identified*. The migrants mixed freely with the resident species, Stilts (*Himantopus himantopus*), which were breeding, and Blacksmith Plover (*Hoplopterus armatus*) being abundant, while Painted Snipe (*Rostratula benghalensis*), Avocets (*Recurvirostra avosetta*) and Kittlitz's Plovers (*Charadrius pecuarius*) were fairly common.

No waders at all were seen at the Shorobe camp, where suitable mud shores were lacking, and on the Botletle river they were only in small numbers, a Greenshank, Wood Sandpiper and Common Sandpiper (*Tringa hypoleucos*) being collected.

At Lake Ngami also there were flocks of several hundred Pratincoles (*Glareola*) and both "red-winged" and "black-winged" birds were netted together and collected from the same flocks, though red-winged were far more common. We can add little to the controversy of whether the two varieties represent species or not, for we failed to distinguish them in the field, only red-winged birds being identified with certainty. It is perhaps worth noting that a higher proportion of black-winged birds were netted, and that all black-winged birds were in partial moult.

Another migrant abundant on Lake Ngami was the White-winged Black Tern (*Chlidonias leucoptera*), which was common also at Shorobe but less so on the Botletle. The aggressive behaviour of the flocks of terns to anyone wading into the shallows was oddly proprietorial for birds not on their breeding grounds but was not sustained for more than five or ten minutes.

The Great Reed Warbler (*Acrocephalus arundinaceus*) and the Sedge Warbler (*A. schoenobaenus*) were both common in beds of *Phragmites* reeds, and in the tall vegetation round the mealie lands on Lake Ngami, being in about equal numbers with the African species *A. baeticatus* and *A. gracilirostris*. Specimens of both migrant species were in moult at the end of December (see Williamson 1960). The Sedge Warbler was found also in knee-high patches of rank vegetation near the water.

Single Corncrakes (*Crex crex*) were seen in the reeds at all three camps.

European Swallows (*Hirundo rustica*) were common everywhere, hawking over open country to the complete exclusion of any African species, but they were particularly abundant on the Botletle river, where enormous tight-knit flocks whirled up and down the river in the evenings.

On the shores of Lake Ngami, Lesser Kestrels (*Falco naumanni*) were common and so was Montagu's Harrier (*Circus pygargus*), which far outnumbered the resident Marsh Harrier (*C. ranivorus*).

Among bush birds only the Thrush Nightingale (*Luscinia luscinia*) seemed in any way dependent on the presence of water, being found in rich riverine growth along the Botletle. Willow Warblers (*Phylloscopus trochilus*), Spotted Flycatchers (*Muscicapa striata*) and Red-backed Shrikes (*Lanius collurio*) were associated more with the dry thorn bush away from the river and the lake at both the Botletle and Ngami camps. The Willow Warblers were usually to be found in bird parties with sunbirds and Crombecs (*Sylvietta rufescens*), while most of the flycatchers were found skulking in the base of bushes. It is possibly significant that the only one collected from a typical flycatcher perch was the only specimen that was not in moult. The migrant Red-backed Shrike is found through most of southern Africa but literature suggests that it is particularly common in northern and central Bechuanaland (Roberts 1935; 154, Hall 1956: 108) in areas from which the resident Fiscal Shrike (*Lanius collaris*) is curiously absent.

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* See *Ostrich* 1963.

European Bee-eaters (*Merops apiaster*) were only seen once, being the only birds encountered on an open stretch of grassland in thorn country north of Shorobe. All three specimens collected were in moult.

It is not possible from such a brief stay in a limited area to be dogmatic about the behaviour of migrants in their winter quarters but it is apparent that their ecological relationship with resident species is highly variable in the different families. It is also worth noting the preference that most bush and woodland species seem to show for the dry thorn country, rather than riverine forest, or mopane woodland (which is singularly barren of resident species as well); it is possible that the protection from predators afforded by thorn country may have some bearing on this.

Finally, it is evident that considerable research is needed into the incidence of winter moult among migrant species, as indeed workers like Williamson have already appreciated. This factor is particularly important to systematic workers trying to determine the subspecies of migrants. Since for this purpose it is essential to compare specimens that are in like plumage it is difficult to see how satisfactory identification can be made between subspecies that vary only in degree of colour, for birds on their breeding grounds (May to August) which provide the yard-stick for subspecific identification, are not truly comparable with winter birds, nor is there any certainty that the new plumage acquired in winter will be identical with that acquired by the same bird in a summer moult.

To further research in this field the British Trust for Ornithology has instigated a moult enquiry, keeping card records for Palaearctic species. Anyone interested who has opportunity to handle or collect specimens is urged to contact the Trust (2 King Edward St., Oxford) so that they may co-operate in tackling this problem.

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"*Passer rufipectus*" Bonaparte in Crete

by GEORGE E. WATSON

Received 4th November, 1962

The type of *Passer rufipectus* Bonaparte (1850, *Consp. Av.* 1: 509), collected in Egypt, has been considered a hybrid between a local House Sparrow (*P. domesticus niloticus*) and a migrant Spanish Sparrow (*P. hispaniolensis*) with an aberrant chestnut throat patch (Meise 1934. *Orn. Monatsber.* 42: 12). The characters of the presumed parental populations are shown in Table 1. Another presumed hybrid from north-east

Africa which had pronounced rufous and chestnut pigments was named *P. italiae senckenbergianus* by Hartert (1904, *Vög. pal. Fauna:* 152) and a similar bird from Egypt (Dresden Museum, 1499) was described by Meise (1934: 13).

A breeding male sparrow (Yale Peabody Museum 60943) which corresponds to the description of *P. rufipectus* was collected in an olive grove-wheat field near Tylissos, Crete, May 3, 1959. The specimen is of the *italiae* type except that the usually black markings at the side of the black throat are mixed with chestnut and some of the lower back and rump feathers are washed with rufous. It has the pair of creamy white back stripes and jagged posterior margin to the throat patch found in *P. hispaniolensis* and thus scores 57.5 in Meise's (1936, *Journ. f. Orn.* 84: 633) hybrid index in which "pure" *domesticus* is 0, *italiae* about 50, and "pure" *hispaniolensis* 100. The latter two characters are present in most, but not all, of the Cretan population which is probably the stabilized autochthonous result of hybridization (index 40–60) between *P. domesticus* and *P. hispaniolensis* (Meise, 1936: 664). This population is taxonomically indistinguishable from the Italian population, best called *P. domesticus italiae*. Therefore, *P. i. schiebeli* Rokitansky (1934, *Falco* 30: 8), type locality Khanea, Crete, is a synonym of *P. d. italiae*.

In the *P. domesticus-hispaniolensis* superspecies, aberrant individuals with extensive chestnut or rufous coloration are not rare. Spanish Sparrows with chestnut throat feathers have been found in north-east Africa (Hartert, 1904, *Nov. Zool.* 11: 458). House Sparrows with chestnut markings on the throat are frequent in Switzerland (Daut 1921, *Orn. Beob.* 18: 53) and have been collected in northern Europe, the British Isles (Sharpe, 1888, *Cat. Birds Br. Mus.* 12: 310), and the United States (Calhoun, 1947, *Auk* 64: 305). A similar male (YPM 59427) was collected by me in Mugla, south-western Turkey, 14th April, 1960. Part of the throat patch of this specimen is chestnut, the lower back is washed with rufous, and some of the upper tail-coverts are totally rufous. Its hybrid index is 2.5 (jagged throat margin).

The wing of the type of *P. rufipectus* is 79 mm. (Meise, 1934: 12), a little longer than the mean of the Cretan population, which, according to Rokitansky (1934), *Falco* 30: 8), measures 76–82 (78 mm.) in 50 males. Because *P. d. niloticus* is smaller, measuring 72–77 (75 mm.) in 20 males (Vaurie, 1959, *Birds Pal. Fauna;* 570), it seems likely that *P. rufipectus* represents an aberration of the Cretan population which occasionally wanders to Egypt in the winter (Meinertzhagen, 1930, *Nicoll's Birds of Egypt;* 120) rather than the product of a mixed pairing between an Egyptian House Sparrow and a wintering Spanish Sparrow which failed to return north. *P. i. senckenbergianus* and the other Egyptian hybrid, since they are smaller, 74.5 and 73.5 (Meise, 1934: 12), probably are crosses of *P. d. niloticus* and *P. hispaniolensis*.

TAXONOMIC CONCLUSIONS:

Passer rufipectus Bonaparte from Egypt, thought by Meise to be a hybrid of *P. domesticus niloticus* x *P. hispaniolensis*, is here considered to be an aberrant vagrant of the Cretan sparrow population *P. d. italiae*. On the basis of their smaller size *P. italiae senckenbergianus* Hartert and a similar sparrow with pronounced rufous colouring from Egypt in the

Dresden Museum may be the result of local hybridization between the small Egyptian *P. d. niloticus* and *P. hispaniolensis*.

TABLE 1
Characters of the populations of the
Passer domesticus – hispaniolensis superspecies

Population	Description	Hybrid index (Meise 1936: 664)
P. d. domesticus Europe & western Turkey	Grey crown, grey cheeks, restricted black throat, plain flanks, brown back, large	0
P. d. niloticus Egypt	Grey crown, grey cheeks, restricted black throat, plain flanks, brown back, small	0
P. d. italiae Italy, Crete	Brown crown, usually white cheeks, extensive black throat, plain flanks, usually brown back, large	40–60
P. hispaniolensis Southern Europe, south-west Asia, North Africa	Brown crown, white cheeks, extensive black throat, black streaked flanks, black and cream back, large	100

TABLE 2
Summary of taxonomic conclusions

Specimen	Description	Meise 1934	Watson
Type of "*P. rufipectus*" from Egypt	Large hybrid with reddish neck	=aberrant *P. domesticus niloticus* x *P. hispaniolensis*	=aberrant Cretan *P. d. italiae*
"*P. i. senckenbergianus*" from north-east Africa	Small hybrid with reddish neck	=aberrant *P. domesticus niloticus* x *P. hispaniolensis*	=aberrant *P. domesticus niloticus* x *P. hispaniolensis*
Dresden Mus. 1499 from Egypt	Small hybrid with reddish neck	=aberrant *P. domesticus niloticus* x *P. hispaniolensis*	=aberrant *P. domesticus niloticus* x *P. hispaniolensis*
Y.P.M. 60943 from Crete	Like "*rufipectus*" Hybrid index 57.5	—	=aberrant Cretan *P. d. italiae*
Y.P.M. 59427 from Turkey	*P. domesticus* with reddish neck Hybrid index 2.5	—	=aberrant *P. d. domesticus*

The validity of the genus *Lusciniola* Gray

by S. A. PARKER AND C. J. O. HARRISON

Received 6th December, 1962

Seebohm (1881) included eleven species in the genus *Lusciniola*. Subsequently, however, many of these were found to have affinities with other genera, and in more recent works the genus has been regarded as monotypic, containing only the type species, *Lusciniola melanopogon*, the Moustached Warbler.

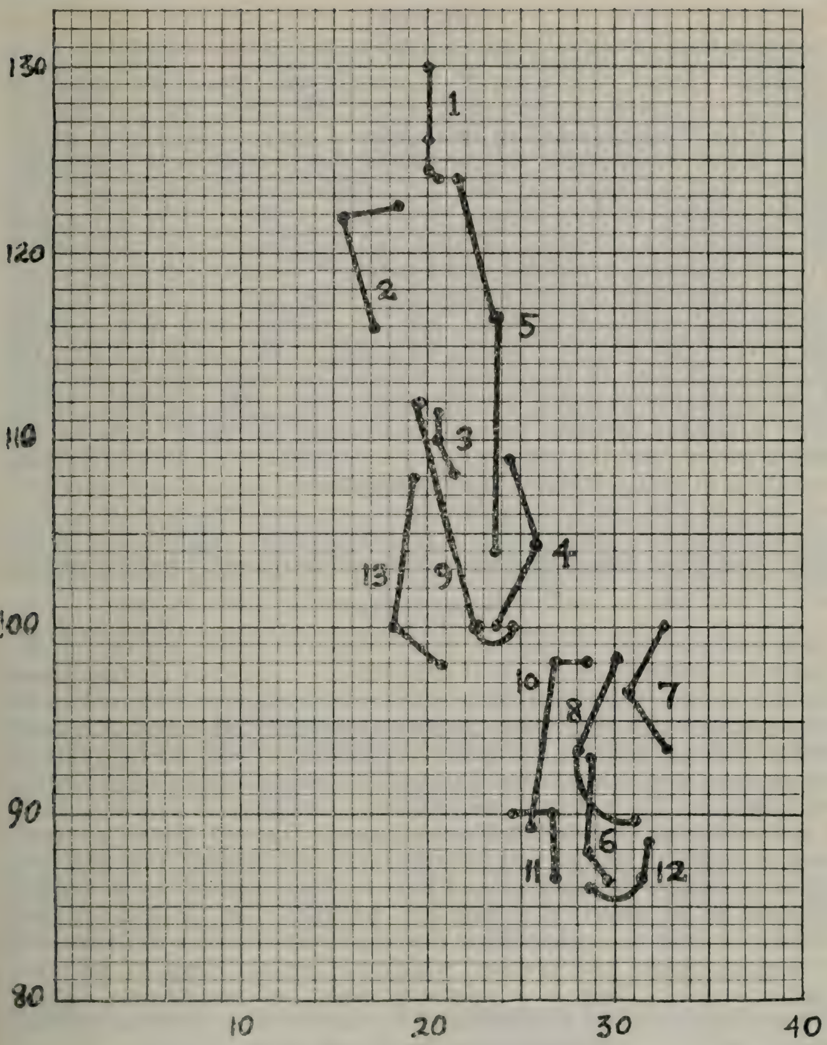
This species does not appear to show any marked differences from species of the genus *Acrocephalus*. It bears an extremely close resemblance to the Sedge Warbler, *A. schoenobaenus*, having a similar colour pattern, size, and shape and size of bill and legs; the tail being similar also but differing slightly in the degree of graduation shown by the tip. There is some difference in wing shape, *A. schoenobaenus* having a longer and narrower wing, while that of *L. melanopogon* is shorter and more rounded. The latter species is also darker and more red-brown on the dorsal surface, and paler underneath, while the former is a more buff-brown with less contrast between the upper and under side. The general similarity is very close and the colour difference is of a type which could normally be regarded as of merely subspecific value.

While the similarities are self-evident, it is difficult to discover what valid characters exist for the generic separation of *Lusciniola* from *Acrocephalus*. If one compares the descriptions of the two species in such works as the Handbook of British Birds (Witherby *et al.* 1938) one finds that the only characters which appear to be of critical value are the relative length of the tenth primary (=outermost or first primary of earlier systematists), the difference in the extent of the spring moult, and the behavioural character of cocking the tail.

LENGTH OF TENTH PRIMARY

In order to discover the validity of the relative length of the tenth primary as a generic character, random samples of this species were measured, and of as many species as possible of the genus *Acrocephalus*. In view of the small sample it is possible that the range of measurement within the species is greater than that shown, but this would not affect the inferences drawn from the resultant data. Data are shown on the accompanying graph. For the sake of clarity the small group of species found on the Pacific Islands, the data for which would appear at the lower end of the range shown, have been omitted.

The distance from the carpal joint to the tip of the tenth primary has been expressed as a percentage of the distance from the carpal joint to the tip of the longest primary covert, the latter being a reasonably conservative character in the wings of all the species concerned. It can be seen that the long tenth primary of *melanopogon* merely represents an extreme in a trend which is apparent throughout the genus *Acrocephalus*, and there is no evidence of a discontinuity at any point which could form a valid character for generic separation. The other value calculated was the roundedness of the wing. Here the distance between the first secondary and longest primary tips on the closed wing has been expressed as a percentage of the total wing-length. It can be seen that there is a consistent correlation between the two characters. The shorter and more rounded the wing, the longer the tenth primary will be. A short or vestigial tenth primary is usually associated with a long wing. This is considered to be an adaptive character, the longer wing and short tenth primary being found in migratory species, the shorter wing and longer tenth primary in sedentary species. This has been recognised in a number of different families (Kipp, 1942, 1958; Meinertzhagen, 1951; Dorst, 1962; Stegmann, 1962). On the evidence of primary feather length alone, there is no basis for maintaining the separate identity of *Lusciniola* and *Acrocephalus*.



The Validity of the Genus *Lusciniola*

Vertical axis—relative length of tenth primary=

$$\frac{\text{(Carpal joint to tip of 10th primary) 100}}{\text{carpal joint to tip of longest primary covert}}$$

Horizontal axis—relative roundedness of wing=

$$\frac{\text{(tip of 1st secondary to tip of longest primary) 100}}{\text{wing length}}$$

Species: 1, *melanopogon*. 2, *concinnens*. 3, *agricola*. 4, *sorghophilus*. 5, *bistrigiceps*. 6, *schoenobaenus*. 7, *paludicola*. 8, *palustris*. 9, *dumetorum*. 10, *scirpaceus*. 11, *stentoreus*. 12, *arundinaceus*. 13, *baeticatus*.

MOULT

Witherby (1929) made a preliminary survey of the moults in many Palaearctic species, and some of his conclusions appear to have been uncritically accepted by many later writers. He considered that *melanopogon* had a complete moult in autumn and a body moult in early spring. In the genus *Acrocephalus* he considered that *arundinaceus*, *scirpaceus*, *palustris*, and *schoenobaenus* had two complete moults each year; that *paludicola* had a complete autumn moult and a body moult in spring; and that (*arundinaceus*) *orientalis*, *agricola*, and *dumetorum*, were intermediate in that they showed a variable spring moult. Williamson (1960), however, examined specimens of these species from winter quarters as well as from breeding and migration localities, and the evidence from these suggests that there is one relatively protracted moult in the winter quarters, the time of which may be individually variable but may relate to the geographical locality in which overwintering occurs. The beginning of the moult is already apparent in some individuals during the autumn migration period, and the completion of it is apparent in some migrating individuals in spring. It seems likely that Witherby was misled by this fact, and deduced from such birds that there were two moults, when in fact only one occurred. The evidence at present available suggests that all the species concerned have a single annual moult in the non-breeding period.

TAIL-COCKING

The final character considered here is that of cocking the tail. B. W. Tucker (in Witherby *et al.* 1938) commented ". . . when moving about amongst swamp vegetation cocks its tail in a manner quite unlike an *Acrocephalus* which (its) habits otherwise resemble". However, this comparison was only with the European species and not with the full range of *Acrocephalus* species which are likely to show greater variability in posture and behaviour. The extreme morphological similarity of *melanopogon* to *A. schoenobaenus* has already been indicated. The two species are sympatric in Southern Europe and possibly in a small area of Turkestan, and appear to occupy the same type of habitat. There appears to be a slight difference in the preferred nesting site, but that is all. In view of their similarity it is to be expected that the two birds will show differences of appearance, voice, and posture, which will enable them to maintain specific identity. There is a relatively slight but nevertheless distinct difference in colour. To the human ear the songs of the two species show a general similarity but are sufficiently different to be separable. The tail-cocking might well function as a specific signal posture which helps to maintain the specific identity. D. Goodwin (pers. comm.) has pointed out that the same character could be used to separate the Blackbird, *Turdus merula*, from other *Turdus* species. This character would appear to be of specific rather than generic value.

SPECIFIC RELATIONSHIP

In view of the lack of valid characters for separation and in view of the very close similarity of *schoenobaenus* and *melanopogon* in so many of their characters, it seems reasonable to suggest tentatively that these are especially closely related. The former is migratory, the latter mainly sedentary. The importance of this in relation to the length of the primaries has already been mentioned. To some extent the species replace each other geographically, *schoenobaenus* having a breeding range extending from Scandinavia through Europe to the Mediterranean and eastwards into Siberia, while *melanopogon* is present to the south of this. The latter species has a discontinuous distribution, one race being found around the Caspian Sea, eastwards into Turkestan, and south to Iran and Iraq, while the other has a broken distribution through southern Europe on the edge of the Mediterranean, and into north-west Africa. This suggests that the species may have had a more continuous distribution in earlier times, and have been isolated in residual areas by the increasing aridity of the Middle East and North Africa. The decrease of suitable swampy breeding areas to the south may have brought it into secondary contact with *schoenobaenus*, with which it may share a common ancestral origin, sufficient differences having evolved during isolation to ensure specific separation. At the present time the distribution of the two species is mainly allopatric in Asia, with possible sympatry in two small areas; but there is considerable sympatry in southern Europe.

CONCLUSION

From the evidence available it is considered that *Lusciniola* is not a valid and separate genus, the single species concerned not being generically separable from species in the genus *Acrocephalus*. The latter generic name having nomenclatoral priority, the specific name of the Moustached Warbler should now be *Acrocephalus melanopogon* (Temminck).

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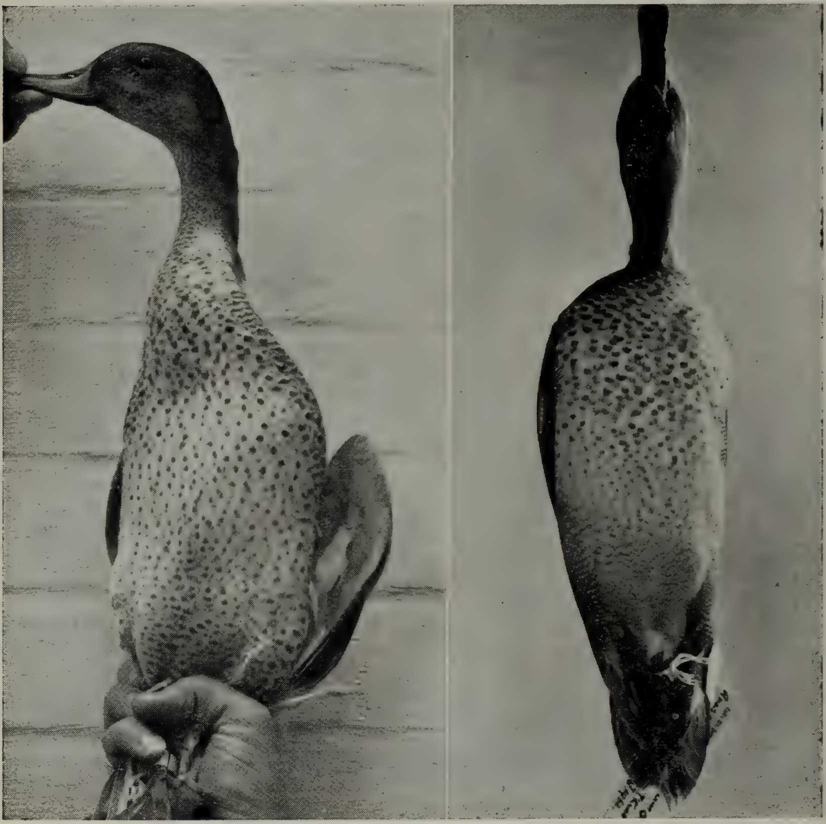
Spotted breast variants in the European Green-winged Teal and the Northern Pintail

by James M. and Jeffery G. Harrison

Received 25th September, 1962

The two specimens to be described show a striking and unusual degree of spotting of the breast. The first is a drake European Green-winged Teal *Anas crecca crecca* Linnaeus, which was shot on the Isle of Sheppey, Kent on 7th December, 1956 by J. M. H. The bird was in normal full winter plumage at the time and as it was only wing-tipped, it was kept alive with our wildfowl collection until it died on 1st June, 1962. When this happened, we were surprised to find that the entire belly was well marked with black spots, smaller than on the upper breast and merging with the grey vermiculations between the legs. While alive, this unusual plumage was not observed, as the belly is practically impossible to see without catching the bird, so we do not know at what age the full plumage changed its character. All that can be said with certainty is that the bird was at least six years old when it died.

A drake Northern Pintail *Anas acuta acuta* Linnaeus in normal full plumage was caught alive in Essex in January, 1958. On 27th July, 1962, it was caught up when in full eclipse plumage and was found to have a marked degree of black spotting covering the breast and belly. Like the Teal, this plumage was not noticed until the bird was handled. Both were living under conditions where an abundant supply of natural food was available and this was supplemented by corn.



Left: Drake Pintail (in eclipse) with spotted breast. 27. 7. 1962.
Right: Drake Teal with spotted breast. 1. 6. 1962.

As can be seen from the plates, both of these plumages are quite different from normal. We have already recorded one similar, but less marked variant in a drake Teal (Harrison, 1946) and the same variant in two out of a series of 12 drake Gadwall *Anas strepera* Linnaeus (Harrison 1958).

The presence of spotted breasts and bellies as variants in drakes of three Holarctic duck species seems worthy of further consideration. We believe that this variant is more primitive than others we have described, such as the frequent presence of white neck-spots and semi-rings in drake European Green-winged Teal, which we believe indicates an affinity to the Mallard *Anas platyrhynchos platyrhynchos* Linnaeus (Harrison 1961) at species level. It is a fact that the juveniles and females of many species of duck have spotted bellies and also that some species principally in the southern hemisphere, show a lack of sexual dimorphism with duck-like plumages, which Sibley (1957) attributes to lowered selection pressure against hybridisation. In discussing the Cape Shoveler *Anas smithi* (Hartert) Winterbottom and Middlemiss (1960) consider it probable that the Northern Shoveler *Anas clypeata* Linnaeus diverged from *A. smithi* before the line had evolved a marked sexual dimorphism and that *A. smithi* has remained close to the ancestral form from which *A. clypeata* evolved in the north. It is our view that the occasional spotted breast in drakes of Holarctic duck species represents a reversion to this type of undifferentiated ancestral form and the presence of this variant in the eclipse plumage of the Pintail drake is particularly interesting, in view of the fact that this plumage is also likely to be reversionary, having a survival value from its cryptic coloration and being able to develop in the post-breeding season, when selection pressure against hybridisation must be at its lowest.

We are indepted to Dr. Pamela Harrison for photographing the specimens.

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A snake attack upon a weaver-bird colony. Possible significance of synchronous breeding activity

by J. H. ELGOOD AND P. WARD

Received 22nd November, 1962

In the series of articles by Pitman (1958, 1962) on reptile predators of birds, there are few accounts of a snake being observed while in the act of killing a wild bird and presumably few people have ever witnessed such an encounter. We feel, therefore, that this description of a snake's attack upon a small weaver-bird colony may be of interest even though the snake was not identified.

The reactions of the birds in the colony to the marauder's visit were quite different from what one would expect. The happenings observed provoked a discussion between us leading to a hypothesis being formulated concerning the significance of synchronous nesting in weaver-bird colonies.

The encounter

On 11th October, 1962, a small colony of Chestnut-and-Black Weavers, *Ploceus nigerrimus castaneo-fuscus*, Lesson was discovered in a roadside swamp near Oyo, western Nigeria. The thirty or so nests were supported by stems of a tall grass and were placed at heights varying between 1–2 metres above the water level. Although attached to grass stems in a manner more typical of *Euplectes* (nests of *P.n. castaneo-fuscus* are usually found in bushes overhanging water, in tree-tops or in bamboo) the nests were of normal form.

While the colony was being scrutinized for signs of activity, a snake was seen to ascend one of the grass stems supporting a nest; it could not be identified but was about one metre long and of slender build; pale olive-brown above, silvery below, but lacking any distinctive markings. The climbing snake was scarcely interrupted by three female weavers which were diving directly at its head, though at each swoop of a bird, it ducked momentarily. On reaching the nest a somewhat clumsy entry was effected after some searching for the opening: the weight of the snake then caused the collapse of the supporting grass so that both snake and nest disappeared from view. Within two minutes, however, the predator was seen climbing to another nest nearby. The interval before the snake's reappearance was so short that it is unlikely that it had found anything in the first nest.

The second nest was entered very rapidly and it was possible to see that when the snake withdrew its head after only a few seconds' search inside, there was nothing in the mouth. Thereupon it detached itself and fell out of sight; then once again, within two minutes, it was seen to be climbing to a third nest. This time the search was fruitful and when the snake withdrew it was seen to be holding a well-feathered nestling in its jaws, with the head still protruding. According to Pitman (1962), this method of seizure is not uncommon. The snake again dropped from view but this time the fall may have been caused by the attack of an adult bird which dived at the intruder as it pulled out the nestling.

The total period for the searching of three nests was only about five minutes. During this time more birds were attracted back to the colony yet only four or five females made any attempt to drive away the predator. Even these feeble attempts deserved respect, however, for they were not merely mobbing actions but definite attacking movements; and, as Hinde has stated (1961), small birds do not normally attack predators.

DISCUSSION

Synchronization of breeding activities is a common feature of Ploceine weaver colonies. Leaving aside the much disputed reasons for colonial breeding, the importance of synchronization within a colony, which appears to have received little attention from students of bird behaviour, is the subject of the following hypothesis:

In those parts of the world where specialized nest-robbers occur (especially in the tropics where some nesting takes place in all months of the year) it seems probable that any such predators finding an accessible colony within their feeding area would attach themselves to it until it became empty. It is unlikely that small birds can effectively defend their nests, but fortunately there is a factor which must limit the losses of eggs and young: the appetite of the predators. It follows therefore, that by limiting to a minimum the length of the time during which a colony is occupied, the percentage loss of offspring will also be minimal. Close synchronization of breeding activities, being a means of reducing the period of occupation of a colony, may thus be regarded as a form of passive defence against specialized nest predators, although this is probably not its only function.

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On some races of *Motacilla flava* Linn. found in Indonesia

by A. Hoogerwerf

Received 16th July, 1962

The difficulties encountered when classifying representatives of this wagtail are already pointed out by other authors. Voous[1] tried to solve part of the problems; he classified the greater part of the material present in the Bogor Museum which I used when studying my freshly collected birds from Princes Island and those from the Karimundjawa and Kangean Archipelagos. Study of this material induced me to publish these notes.

When comparing the series before me with the particulars published by Voous, the results differ on several points. There are for instance two females obtained in January, named by him as adult *simillima* which have the under parts much darker yellow than two females classified by the same author as adult *taivana* (obtained in September and October), though following Voous' own paper, the opposite should be the case in birds in the winter plumage.

An adult bird (shot in October) classified after some hesitation as *tschutschensis* by the same author is indeed "duller yellow" on the under surface, when compared with both January skins, indicated above as *simillima*, but certainly not duller than a third specimen classified as *simillima* ad. ♂ by the same author, which was secured in October in Central Java and also not duller than still another male in winter plumage from Krakatau Island (Strait Sunda): both these birds show also dark brownish markings on the chest. This *tschutschensis* was labelled by Gerlof Mees, who secured the skin near Bogor (West Java), as ♀ ?, but Voous made the remark on the label "looks like a ♂". However, in his publication he calls this same bird a male without any further comment. This is in my opinion not justified, particularly in this case where it concerns a subspecies which shows sexual dimorphism and which was never before secured on Java.

As the most important reason which induced Voous to consider this bird and a second juvenile male obtained at the same date and in the same locality, not identical with *taivana* or *simillima*, he mentions the darker upper parts. But when comparing fresh skins of *taivana* or *simillima* with material stored for a considerable time in a museum, the necessity to use material obtained at about the same time is very evident. I had occasion to ascertain this as an undisputable fact after comparing my freshly collected skins with those secured many years ago in exactly the same localities and in the same months.

Both these birds considered as *tschutschensis* were shot in 1948 and studied certainly not later than two years after their death and they were the only fresh skins Voous could study in the Bogor Museum. When we mix these skins with the fresh ones, recently obtained by me from the localities mentioned above it proves quite impossible to separate them on their darker upper surface. But the adult bird is a trifle greener on those parts and the juvenile a distinct light grey, probably not characters which make *tschutschensis* separable from both other races discussed above, because such differences were not mentioned in Voous' paper.

That all my fresh skins of this wagtail should belong to this (for Java) new subspecies is unbelievable and is certainly not so. Voous himself classified a juvenile male and female originating from Karimundjawa (secured there in November 1930) as *taivana* and I am of the opinion that my freshly obtained October/November birds from that same group of islands also belong to this race, though they are strikingly darker above than the skins obtained there 25 years earlier.

Three adult females collected by me on Princes Island, Karimundjawa and Kangean fully agree in the feathering of the under parts with two females named by Voous as *taivana*, which were shot in the same months (September and October) on Krakatau and Billiton Islands. But the dark markings on the chest are more obvious in those fresh skins than is the case in both these *taivana* and this—after Voous—should form an indication in the direction of *simillima*. However, in accordance with the same author, this last race always has the head greyer than the mantle and back which, indeed, is so with the adult *simillima* of both sexes before me, though not always in the same striking way. In the three adult females indicated above, the pileum and the remaining upper parts are exactly the same colour and two of them have a little green on the lower back. They have also very distinct white eye-stripes.

On account of the great similarity in the tint of the under parts, together with the uniform colour of the upper surface when compared with the skins considered by Voous as *taivana* which were obtained in the same months, I think it fully justified to consider those fresh skins as *taivana*. In this subspecies I also included two juveniles obtained from Princes Island and Karimundjawa which also agree with old material of this race, partly from this last group of islands, excepting again the darker upper parts.

In view of the above there seems little reason to consider both Bogor skins, classified by Voous as *tschutschensis* Gm (=*alascensis*)—one specimen of uncertain sex—to belong to this race. In my opinion they are *taivana;* they have the Bogor Museum nos 18.851 and 18.852.

One female from Karimundjawa has a rather dark pileum and seems also a trifle darker on the ear-coverts than the other birds seen by me, which makes it rather similar to *macronyx*. But it has a distinct eye-stripe and the upper parts do not differ from fresh *taivana* which induced me to classify this skin, too, as belonging to this last subspecies; it is no. 24.347 of the Bogor Museum.

The individual size differences in birds of this species are not large but females seem to average a trifle smaller than males.

In 1959 the same author published a second paper[2] dealing with the races of the Yellow Wagtail wintering in Borneo. Among the 44 adult specimens within a series of 54 skins present in the Sarawak Museum he classified 34 skins as *taivana* (=77%), nine as *simillima* (=20%) and again one as *tschutschensis*. He also draws attention to a possible hybrid of *simillima* x *taivana*.

I think Mayr[3] was right when giving as his opinion that in this case only an analysis of breeding populations can lead to reliable results and that conclusions based on a study of specimens on migration or in their winter quarters may be misleading in such a difficult species complex as *Motacilla flava*.

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[2] Voous, K. H. A new note on the races of the Yellow Wagtail (*Motacilla flava*) wintering in Borneo; *The Sarawak Museum Journal*, 9, 1959, p. 13–14.

[3] Mayr, Ernst. The interpretation of variation among the Yellow Wagtails; *British Birds*, 49, 1956, p. 115–119.

Some Pochard x Lesser Scaup hybrids

by BRYAN L. SAGE

Received 12th December, 1962

The hybrids discussed in this paper are of particular interest in that they are the only known specimens of this interspecific cross, and apparently not previously described.

Annie P. Gray (*Bird Hybrids* 1958) mentions only one instance of this cross having been obtained and that refers to the birds dealt with here. At least five of these hybrids were bred in captivity in 1928 by Lord Lilford, at Lilford Hall, Northamptonshire, England. The male parent was a European Pochard, *Aythya ferina* (L) and the female a Lesser Scaup, *Aythya affinis* (Eyton). The specimens that I have had available for study consist of an adult male and female in full plumage from the same brood. They were formerly in Lord Walter Rothschild's collection at Tring Museum, but are now with the Rothschild collection at the American Museum of Natural History, Registered Nos. 734547 and 734549 respectively. The geographical distribution of these species is such that natural hybrids are not to be expected.

DESCRIPTION OF SPECIMENS

Male.

Head and neck—dark chestnut, darker and browner than in male Pochard; blackish-brown feathers are present on the posterior part of the crown and on the nape, and from the throat down the foreneck; there is a small white chin spot.

Upper parts—upper mantle dark greyish-brown with some blackish-brown feathers present at the sides and across the base of the neck; remainder of mantle, back and scapulars dark greyish on a brown ground colour, darker than in male Pochard, and finely vermiculated with greyish-white; rump and upper tail-coverts dark blackish-brown.

Wings—outer primaries dark brownish-grey; inner primaries and secondaries pale grey; wing-coverts mouse brown; under wing white.

Under parts—breast blackish-brown, the feathers of the central and lower breast with broad whitish tips; remainder of under parts pure white; flanks and sides of body vermiculated with brownish, rather more markedly than in male Pochard; vent and lower belly finely vermiculated with pale greyish-brown.

Female.

Head and neck—virtually indistinguishable in colour and pattern from the females of the parental species, but sides of face below and behind the eyes, and the sides and front of the neck are strongly flecked with white; short thick white streak immediately posterior to the eye; some feathers of the crown, lores, area below the eyes, and the chin have blackish tips; the chin is broadly white and there is an extensive white facial shield covering a larger area than in the Lesser Scaup.

Upper parts—colour and feather pattern as in female Pochard, but back and mantle less grey and more brownish with very fine greyish vermiculations; the underlying colour of the back and mantle is as in the female Lesser Scaup.

Wings—wing-coverts pale ash-brown; secondaries pale grey; primaries ash-brown but darker than wing-coverts, paler on inner webs; a very faint olive gloss can be discerned on some of the primaries at certain angles in a strong light; under wing white.

Under parts—mainly white, shade and feather pattern similar to female Lesser Scaup but much whiter; upper breast and sides of breast darker brown; vent whitish with brownish-grey vermiculations; sides of body and flanks very pale grey-brown with fine greyish vermiculations.

MEASUREMENTS OF HYBRIDS AND PARENTAL SPECIES

	hybrid	hybrid	Pochard		Lesser Scaup	
	male	female	male	female	male	female
Wing	206	203	211–220	201–212	190–201	185–198
Culmen	44	43	45–49	43–47	38–42	36–40
Depth at nostrils	18.5	19	18*		17–19*	
Width at nostrils	20	20.5	18–19*		20–21*	
Max. width	20	23	19–20*		24*	

All measurements are in millimetres.
*Six specimens measured.

From the above table it can be seen that the wing and culmen measurements of both sexes of the hybrid fall within the range of those for the female Pochard. It is worth noting, however, that the bill of the female hybrid is as spatulate as that of the Lesser Scaup, whilst that of the male hybrid is hardly more so than in the Pochard.

DISCUSSION

Hybrids in the Anatidae often exhibit characters which are not referable to either of the parental species, and which sometimes appear to be of phylogenetic significance. A close study of the plumage characters of these Pochard x Lesser Scaup hybrids in this connection is disappointing, both sexes being almost pure intermediates. However, it is worth drawing attention to the thick white streak immediately posterior to the eye in the female hybrid. Until such time as further hybrids of various parentages have been examined and evaluated, it is not possible to say exactly what significance may be attached to this character. The female Pochard sometimes shows a pale streak in the same locus. But it may also be borne in mind that the females of the Redhead, *Aythya americana* (Eyton), Canvasback, *Aythya valisineria* (Wilson) and Ring-necked Duck, *Aythya collaris* (Donovan), normally show a thin white or pale line in the same area. A well developed thick white streak in conjunction with white at the base of the bill and on the sides of the head is found in the females of the African and South American Pochards, *Netta e. erythrophthalma* (Wied.) and *N. e. brunnea* (Eyton).

As already stated, wild hybrids between the Pochard and the Lesser Scaup are not possible due to the non-overlapping breeding distribution of the two species. However, natural hybrids between the Lesser Scaup and other American species in the genus *Aythya* may occur. In view of the fairly close morphological resemblance of the Redhead to the Pochard, hybrids between the Lesser Scaup and the former species may well exhibit an appearance similar to those described in this paper.

ACKNOWLEDGEMENTS

I am indebted to Dr. Charles E. O'Brien of the American Museum of Natural History for kindly arranging the loan of the hybrid specimens from the Rothschild collection. Mr. J. D. Macdonald of the Bird Room, British Museum (Natural History), kindly gave me access to material in his charge. I also have to thank Dr. James M. Harrison for the loan of comparative material from his collection.

The Lemon-breasted Canary in Nyasaland

R. Charles Long and C. W. Benson

Received 15th November, 1962

We have examined an undoubted specimen (♂) of the Lemon-breasted Canary *Serinus citrinipectus* Clancey and Lawson, collected for one of us (R. C. L.) at Chiromo, southern Nyasaland on 1st April, 1962, and now in the Nyasaland Museum, Blantyre. Mr. M. P. Stuart Irwin has kindly compared it with material in the National Museum, Bulawayo. He reports that it is not fully adult, retaining the darker, more brown feathers characteristic of immature specimens on the upper side, though yellow feathers typical of adults are coming in on the throat and chest. It has wing 65, tail 37 mm., while Irwin has given us the following measurements in mm. of six specimens of *Serinus mozambicus* collected by R. C. L. in the Port Herald District, southern Nyasaland:

Wing:	2♂♂	66, 67	*Tail:*	38, 40
	4♀♀	64, 66, 67, 67		38, 39, 39, 40

As Irwin (1961) has pointed out, *S. citrinipectus* averages slightly smaller than *S. mozambicus*, alongside which it lives.

This is the first record of *S. citrinipectus* from north of the Zambezi, though Irwin (1961) has recorded it from the south bank at Tambara, Portuguese East Africa.

Reference:

Irwin, M. P. Stuart. 1961. The taxonomic status and relationship of *Serinus citrinipectus* Clancey and Lawson, with notes on related members of the genus. *Durban Mus. Novit.*, 6 (11): 135–148.

BRITISH ORNITH

INCOME AND EXPENDITURE ACCOUNT FO

1961 £	EXPENDITURE	£ s. d.	£ s. d.
	"Bulletin" Vol. 82		
525	Cost of publication, distribution, etc. ..	530 8 3	
130	*Less* Sales	129 1 1	
			401 7 2
395			
33	Notices, etc. for Meetings		34 16 6
51	Postages, Projectionist and Miscellaneous Expenditure		— — —
5	Audit Fee		5 5 0
5	Contribution "Zoological Record"		5 5 0
—	Expenses of Guest Speakers		5 6 6
—	Club Guests		7 16 3
—	Projectionist		15 15 0
—	Miscellaneous Expenditure and Postages ..		49 2 11
£489			£524 14 4
60	Excess of Expenditure over Income, brought down		95 8 9
£60			£95 8 9

BALANCE SHEE

1961		£ s. d.	£ s. d.
	GENERAL FUND:		
1,353	As at 31st December, 1961		1,353 0 4
	BULLETIN FUND:		
	As at 31st December, 1961	294 8 9	
	Add re Ten Year Scientific Index:—		
	Donations from Members	31 11 6	
		326 0 3	
294	*Less* Transfer to Income and Expenditure Account	58 14 10	
			267 5 5
80	SUBSCRIPTIONS 1963, paid in advance		142 2 2
81	CREDITORS		87 14 7
1,808			1,850 2 6
	TRUST FUND: (The Capital of this Fund may not be used. The income from it is General Revenue.)		
1,000	F. J. F. Barrington Legacy		1,000 0 0
£2,808			£2,850 2 6

C. B. WAINWRIGHT, *Chairman*
P. TATE, *Hon. Treasurer*

We have examined the above Balance Sheet and Income and Expenditu
in accordance therewith, and in our opinion correct.

FINSBURY CIRCUS HOUSE,
BLOMFIELD STREET, LONDON, E.C.2.
18*th February*, 1963.

LOGISTS' CLUB

YEAR ENDED 31st DECEMBER, 1962

1961 £	INCOME	£	s.	d.	£	s.	d.
	SUBSCRIPTIONS:						
264	252 Members	264	12	0			
5	3 Associates	3	3	0			
	Income Tax recovered under Deeds of Covenant						
54	1961/62	53	0	0			
					320	15	0
323							
	INVESTMENT INCOME:						
	General Fund	59	10	11			
106	Trust Fund	48	19	8			
					108	10	7
429					429	5	7
	Balance, Excess of Expenditure over Income,						
60	carried down				95	8	9
£489					£524	14	4

50	Sales of "Bulletin" for previous years, *less* expenses	36	13	11
10	Transfer from "Bulletin Fund"	58	14	10
£60		£95	8	9

DECEMBER, 1962

	GENERAL FUND, INVESTMENTS:						
	4½% Defence Bonds, at cost	1,000	0	0			
	3% Savings Bonds 1960/70, at cost	100	0	0			
		1,100	0	0			
1,080	*Less* Reserve	20	0	0			
	(Market Value £1,089)				1,080	0	0
1	PROJECTOR, LANTERN & SCREEN—Nominal Value				1	0	0
1	STOCK OF "BULLETIN"—Nominal Value				1	0	0
—	DEBTORS				2	2	0
726	CASH AT BANK				766	0	6
1,808					1,850	2	6
	TRUST FUND, INVESTMENTS:						
1,000	3½% War Stock £1,399 11*s.* 0*d.* (Market Value £861)				1,000	0	0
£2,808					£2,850	2	6

unt with the books and records of the Club and certify them to be

W. B. KEEN & Co.,
Chartered Accountants.

British Ornithologists' Club

REPORT OF THE COMMITTEE

MEETINGS

The Club held eight meetings during the year at which the total attendance was 326, an increase of 16 over the previous year. In addition there was a joint meeting with the British Ornithologists' Union in October.

MEMBERSHIP

The Committee very much regret to record the death during 1962 of Mrs. H. D. Lowe and Dr. W. A. Richards, M.B., B.S., F.R.C.S. There were 14 resignations and 10 new members were elected, bringing the total membership to 246.

FINANCE

The accounts for the year 1962, submitted herewith, show that the Expenditure exceeded the Income by £95, and after setting-off against this, £37 received from the sales of old "Bulletins", there was a net deficit for the year of £58. A transfer from the "Bulletin Fund" has been made to meet this.

Commencing February 1963, printing charges have had to be increased by approximately 20%. This will mean that despite the increase in the subscriptions for members and subscribers which took effect on 1st January 1963, unless there is a large increase in the number of new members, or large sales of "Old Bulletins," the result for 1963 is likely to show an excess of expenditure of about £80.

Naturally this situation cannot continue indefinitely, and every possible attempt will be made to effect economies. One solution which is in the hands of members is to sign a seven year covenant. If every member did this the deficit would disappear.

C. B. WAINWRIGHT,
Chairman.

BRITISH MUSEUM NATURAL HISTORY
-3 APR 1963
PURCHASED.

CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov., sp. nov., subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

Proofs must be returned without delay. No changes may be made at this stage, other than corrections. At the discretion of the Editor, the Club will pay for a reasonable number of monochrome blocks, which the contributor may retain for his own use.

Contributors are entitled to a maximum of thirty free copies of the *Bulletin*, supplied only as specifically requested by authors. Those contributing to a meeting should hand in their MS. at that meeting; otherwise a note will be inserted mentioning the contribution.

BACK NUMBERS OF THE *BULLETIN*

Applications for back numbers which cost 5*s*. each, should be made to N. J. P. Wadley, 58 Ovington Street, London, S.W.3. Members who have back numbers of the *Bulletin*, which they no longer require are requested to send them to N. J. P. Wadley.

SUBSCRIPTION TO *BULLETIN*

The *Bulletin* may be purchased by non-members annually for 40*s*. (payable in advance) or per copy 5*s*., payable to the Hon. Treasurer, P. Tate, 4 Broad Street Place, London, E.C.2

CORRESPONDENCE

Other correspondence should be addressed to the Hon. Secretary, Dr. J. G. Harrison, "Merriewood", St. Botolph's Road, Sevenoaks, Kent.

DINNERS AND MEETINGS FOR 1963

16th April, 21st May, 17th September, 15th October, 19th November and 17th December.

(The October or November meeting will be held jointly with the B.O.U.)

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Bird Section

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB

Edited by
JOHN J. YEALLAND

2 - MAY 1963
PURCHASED.
BRITISH MUSEUM NATURAL HISTORY

Volume 83
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BULLETIN
OF THE
BRITISH ORNITHOLOGISTS' CLUB

Volume 83
Number 5
Published: 1st May, 1963

Annual General Meeting

The seventy-first Annual General Meeting of the British Ornithologists' Club was held at the Rembrandt Hotel, S.W.7 at 5.30 p.m. on Tuesday, 16th April, 1963. Mr. R. S. R. Fitter took the chair, apologies being received from Major-General C. B. Wainwright, who was indisposed.

The minutes of the last Annual General Meeting, held on 17th April, 1962 were read and confirmed.

It was proposed by Captain C. R. S. Pitman and seconded by Mr. P. Hogg and resolved that the Report and Accounts for the year 1962 be duly adopted. In the discussion on the Accounts, it was pointed out that the recent increase in the subscription rate was going to be nullified by the latest rise in printing costs. The one way in which the Club's income can be substantially increased is by members signing Deeds of Covenant and all members were urged to give this their serious consideration as a matter of urgency.

Dr. J. G. Harrison proposed and Mr. P. Tate seconded a vote of thanks to Mr. N. J. P. Wadley for his work in managing the sales of past *Bulletins*, which is so important to the Club's finances. It was pointed out that any members with back numbers no longer required should send them to Mr. Wadley and it was agreed to consider the possibility of having rare numbers photostatted, in order to complete long series for sale.

It was proposed by Mr. P. Tate and seconded by Mrs. W. Boyd-Watt that a vote of thanks be given to Messrs. W. B. Keen & Co., the auditors.

A copy of the Ten Year Scientific Index was shown to the meeting. A vote of thanks to Mrs. B. P. Hall and Miss Francis Duckett for all that they have done towards this Index was proposed by Mr. J. J. Yealland and seconded by Captain C. R. S. Pitman.

On the recommendation of the Committee, Mr. C. J. O. Harrison was elected to the Committee vice Mr. P. A. D. Hollom, who retires in rotation.

The six hundred and seventh meeting of the Club was then held.

Chairman: Mr. R. S. R. Fitter.

Members present, 20; guests, 3; total: 23.

Mr. R. E. Scott addressed the meeting, illustrating his talk with colour slides, the subject being:

Dungeness Bird Observatory: the first ten years

The bird observatory at Dungeness, Romney Marsh, Kent commenced operations in August, 1952 and has progressed into a highly organised institution publishing its own annual report and providing adequate accommodation for visiting ornithologists. Full migrational records are kept and through the offices of the British Trust for Ornithology liason with the other British observatories is effected.

The migrational studies can be broadly divided into three headings: the trapping and ringing of migrant birds; a daily census to indicate arrivals, departures, influxes, etc.; and visual observations on actual migrating birds. During the first ten years over 68,000 birds of some 156 species have been ringed, mainly nocturnal passerine migrants (8,500 Whitethroats, 6,000 Willow Warblers, etc.). This bulk ringing and the subsequent recoveries add substantially to the British total, enabling a consideration of migration patterns through Europe to be more fully understood.

Briefly, the year's migration pattern follows the following course: during the winter months with any cold or severe weather conditions typical wintering British species such as thrushes and larks move south and west towards a milder climate and return again with subsequent milder weather. During March and April the British wintering species depart eastward to their Continental breeding areas, while with winds in a southerly quarter birds such as the continental race of the Robin together with Gold- and Firecrests may be drifted northwards over the Channel. During April and May, the summer visitors—including warblers, chats, etc.—arrive on a N.W. heading and at such times easterly weather brings an arrival of drifted vagrants such as Icterine Warbler and Bluethroat. During extremely fine weather at this time of the year, "over shooting" may occur, when Golden Oriole, Red-footed Falcon or some other species with a southerly distribution come further north than was intended.

The pattern followed in the autumn is similar, but, of course, in the reverse direction. The autumn, however, provides far greater numbers of birds and considerably more variations on the basic pattern.

The trapping and ringing aspect of the observatory's work provides scope for several ancillary studies, which include weights and their variation, measurements and structure, moult, plumage variation and parasites. The steadily increasing numbers of retraps show well the regularity with which an individual bird returns to its same breeding or wintering quarters.

The Ten-year Scientific Index

The scientific index of the *Bulletin* covering the period 1950 - 1959 inclusive has now been published at the price of ten shillings.

Application should be made to the Hon. Treasurer, P. Tate, 4 Broad Street Place, London, E.C.2.

Donors to the Index Fund will have received a complimentary copy.

Albinistic patterning in a drake Teal

by C. B. Wainwright

Received 13th November, 1962

The occurrence of albinistic patterning in certain species of the Anatidae has been recorded by the Harrisons (1961), involving a white neck spot, white chin spot and symmetrical white primaries. They have recorded this in the Mallard *Anas platyrhynchos platyrhynchos* Linnaeus, the Mandarin *Aix galericulata* (Linnaeus), the Muscovy Duck *Cairina moschata* Linnaeus and Salvadori's Duck *Anas waigiuensis* Rothschild and Hartert.

Although they have also recorded a white neck spot and semi-rings in Teal *Anas crecca crecca* Linnaeus, they have no records of white primaries occurring in this species in association with a white neck spot. It is of interest therefore to record that on 3rd August, 1962, I trapped and ringed a drake Teal at Abberton Reservoir, Essex. The bird was in eclipse plumage and the third and fourth primaries of each wing were completely white. There was a white patch at the base of the neck anteriorly and pale patches were present on the webs of both feet.

Reference:

Harrison, James M. and Jeffery G. Albinistic patterning in the Mallard, Muscovy, Mandarin and Salvadori's Ducks. *Bull. B.O.C.* 81., pp. 168–172.

The Indigo Birds

by C. M. N. White

Received 18th December, 1962

The Indigo Birds are members of the Viduinae, sometimes placed in a separate genus *Hypochera*, but better included in *Vidua*, since they only differ from typical members of that genus in that males in breeding dress do not develop elongated tail feathers. Male Indigo Birds in breeding plumage are black with usually a metallic iridescence which may be pure green, steel green, blue-green, blue or violet; sometimes they are more or less matt black with or without a violet tinge. In addition there are two other variable characters. The primaries are mostly drab brown but are usually black in the north of the range. Soft parts may exhibit red bills and feet or whitish bills and pinkish-brown feet. On the basis of various combinations of these characters a number of species have been described, and there is little agreement among students as to how many species should be recognised. I do not propose to recapitulate here the varying views on the species accepted by different writers, as these can be found in readily accessible standard works. It is, however, worth noting that some writers have expressed doubt as to how to distinguish between the females and non-breeding males of various "species"; moreover, it is difficult to know how those who have claimed to assign females and non-breeding males to different species have been able to do so, since in most parts of Africa more than one "species" occurs, and few if any specimens have been collected with associated males in breeding dress as unquestionable breeding pairs. Indigo Birds are almost certainly polygamous and certainly parasitic on Firefinches (*Lagonosticta*) so that data on their breeding biology are very scanty, and throw no light upon the question of how many species exist. As many as four "species" of Indigo Bird are sympatric in some areas, and where reliable field data exist, as in Central Africa, there is no evidence that these "species" are ethologically or ecologically distinct. If several species exist, they present an exceptional example of very closely related species living completely sympatrically with identical habits and behaviour.

In an earlier note (*Bull. B.O.C.* 1962, 82, 22–26) I reviewed the situation in the Rhodesias and Nyasaland, and suggested that perhaps only a single polymorphic species exists, possibly with polytypic variations. Since then I have been able to examine the material in the British Museum (Nat. Hist.) and the Musée de l'Afrique Centrale, Tervuren, and this has permitted the elaboration of my earlier analysis.

The metallic iridescence of Indigo Birds can be divided into two main groups. The first of these consists of green, greenish-blue and blue birds. The second consists of glossy purplish and matt black or purplish-black birds. Examples can be found which may be difficult to assign to one or the other of these groups but in general they are fairly clearly defined. Bill colour is often easy to recognise even if it has not been noted on skins, foot colour is unsatisfactory because many specimens lack the information on their labels, and it is usually not possible to decide from dried specimens what the colour was in life.

The West African Indigo Birds

Apart from names generally regarded as synonyms, six names have been accepted by different writers as validly applicable to the Indigo Birds living between Senegal and the Cameroons. I have examined about 80 males in breeding dress from this area. By far the commonest type occuring is steel green, and these steel green birds can be divided into three groups:—

i. Small birds with red feet and blackish primaries: wing 62–65 mm. (*chalybeata*).

ii. Similar but bluer birds (*neumanni*).

iii. Steel green birds with brown primaries and brownish feet; slightly larger, wing 64–67 mm. (*camerunensis*).

Typical *chalybeata* is represented by ten males from Senegal and

Mali. From the same two countries there are also six birds which only differ in being a brighter and purer green. These represent *aenea*. It is difficult to believe that these last represent a different species rather than a purer green variant of *chalybeata*, and I regard them as the latter.

From Gambia and Portuguese Guinea there are seven green Indigo Birds available. Two from Gambia agree with *chalybeata*, three from Gambia and one from Portuguese Guinea represent *camerunensis*, and one from Portuguese Guinea is a pure green bird of the *aenea* type but with primaries and soft parts like *camerunensis*. This is the "species" which was described as *nigeriae*. From Sierra Leone I have seen nine males of which six are *camerunensis*, two are *nigeriae* and one is *chalybeata*. *Chalybeata* differs from *camerunensis* only in its blacker primaries and redder feet, and it is suggested that each of these characters may be controlled by a single gene, and that from Gambia to Sierra Leone transition thus occurs from *chalybeata* to *camerunensis* by a mixed population, with black primaried birds becoming scarcer southwards. Since *nigeriae* represents a pure green variant of *camerunensis* analogous to *aenea* as a pure green variant of *chalybeata*, it is suggested that there is no justification for regarding *nigeriae* as a species.

For the remainder of West Africa the data are as follows:— Ghana— one "*nigeriae*"; Nigeria—(except north-east) 24 *camerunensis*, two "*nigeriae*"; Cameroons—two *camerunensis*, two "*nigeriae*". Two examples from Ubangi (Yakota and Irena) are also *camerunensis*. Four males from north-east Nigeria represent *neumanni* as defined above, a form transitional from *chalybeata* to the blue *ultramarina* of Sudan and Ethiopia. Although I prefer taxonomically to unite this intergrade with *ultramarina*, it is convenient to use the name in this context to refer to these birds. Thus far there seems no reason to believe that these green West African Indigo Birds represent more than a single polytypic species.

The remaining West African Indigo Birds are purplish: they consist of one from Senegal, one from Portuguese Guinea, seven from Nigeria and one from the Cameroons. These represent *wilsoni*. I believe they are merely a purple variant of the steel green *camerunensis* which they otherwise resemble. All the female and non-breeding males from the area just discussed are alike.

The north-eastern Indigo Birds

I include here Ethiopia and the Sudan south to the Nile—Uelle watershed. Fifteen males from Eritrea and Ethiopia and 19 males from the Sudan are remarkably constant. They are a rich blue in colour with black primaries and apparently red feet. Their females and non-breeding males are more sharply streaked above than those of West Africa on a paler ground colour. There is a slight size variation, Ethiopan males having wings 64–67 mm. and those of the Sudan 59–65 mm. Westwards from Darfur to Chad they tend to become a little greener as they intergrade with nominate *chalybeata*. There is no difficulty in recognising these blue Indigo Birds as *ultramarina*. In the Bahr-el-ghazal and the Uelle area, however, specimens are either steel green or purple as are four from

Torit. They agree with the West African birds which evidently extend east of Ubangi into this area. Their females also agree better with West African birds.

There are a few anomalous Indigo Birds from North East Africa. Two males from north-west Ethiopia (Gallabat and Lake Tana) are indistinguishable from the steel green West African *camerunensis;* two birds from the Uelle-Nile water parting are like them but have red bills and are indistinguishable from southern African *amauropteryx;* one example from Darfur is pure green "*nigeriae*". Those who recognise several species of Indigo Bird will have to extend the distributions of these "species" far outside their normal ranges to account for these sporadic birds. Unless Indigo Birds migrate long distances and sometimes remain behind in breeding dress, which is not perhaps completely impossible, but for which there is no evidence, these aberrant examples will have to be regarded as aberrations arising from the polymorphic nature of a single species.

Tropical East Africa

All the Indigo Birds of Kenya, Uganda, Ruanda Urundi, Kivu and Tanganyika south to the railway line are bluish-green birds with pale bills, sometimes (? always) reddish feet, rather dusky brown primaries. Occasionally they have a rather purplish tinge. I find difficulty in discerning any well marked colour phases in this area. The females and non-breeding males are well streaked above like *ultramarina* but darker. They represent *centralis*. In the Congo north of the Katanga they seem to merge westwards into steel green birds like the West African *camerunensis* in Kasai and the lower Congo. These western Congo birds have females and non-breeding males usually well streaked above as in *centralis*, and no doubt represent a transition from West African birds to *centralis*. I think they are best left as part of the West African form, but the earliest name for the latter is *wilsoni*, and it may be that *camerunensis* which was actually based on birds from northern ex-French Congo could be applied to the western Congo birds if it is desired to separate them.

Southern and Central Africa

Polymorphism is most marked in this area and this no doubt explains in part why some writers have been led to accept so many possible species of Indigo Bird.

Purple birds (*funerea*) occur from Natal to southern Tanganyika and to the Katanga. About half of the series of some 250 males from these areas are in fact *funerea*. It seems likely that purple birds from south of the Limpopo have red feet; further north pinkish or brownish feet. This could be used to distinguish two forms if the purple birds were a distinct species from the steel green ones, but if they are phases of a single species, it would hardly suffice to enable 50% of the examples to be separated. I do not therefore believe that this variation in foot colour is of taxonomic significance.

A number of birds from the Rhodesias, Nyasaland and northern Portuguese East Africa differ from *funerea* in lacking the purple iridescence; they appear to be matt black or purplish-black. This appears to be due to the failure of these individuals to develop the structure of the feather barbules requisite for iridescence, and is analogous to a similar but much rarer phenomenon found for example in sunbirds. These matt birds represent *nigerrima*. I regard them as a phase of *funerea*.

The other 50% of southern and central birds are steel green with red bills and feet and represent *amauropteryx*. They look surprisingly different from *funerea* and it is not remarkable that they have long been regarded as a species. Their range is slightly different from the purple birds, for they are largely absent in Northern Rhodesia west of the Luangwa and north of Broken Hill and in the Katanga may be wholly lacking. They predominate over *funerea* in the dry and hot areas of the lower and middle Zambezi valley and in the Luangwa valley, but *funerea* occurs with them in the Shire valley in south Nyasaland. The only example seen from Ovamboland is of *amauropteryx* type.

My reasons for doubting that *amauropteryx* represents a distinct species apart from its lack of ethological features where it is sympatric with *funerea* are as follows. In the north-east of its range, *amauropteryx* often loses its red bill which is replaced by whitish. One from Southern Rhodesia, one from Bechuanaland, six from Northern Rhodesia and 13 from Nyasaland are of this type. Such white-billed birds also sometimes are purer, less steel green, and on this type was based *codringtoni* which I regard as a pure green variant analogous to *nigeriae* and *aenea*. A series from Rukwa in south-west Tanganyika and one from Iringa are also of this type. These white-billed green birds of Southern Africa merge into *orientalis* in Tanganyika, and are hardly separable from West African green birds except by their red feet. Thus the red-billed *amauropteryx* is certainly not a distinct species but forms part of the polytypic totality of steel green Indigo Birds. The southern and central purple *funerea* are inseparable from *wilsoni* in its purple West African phase apart from the fact that all southern and central African females and non-breeding males are darker and more streaked above than those of West Africa. If *funerea* and *amauropteryx* in southern and central Africa are considered to be distinct species, then of course the purple birds which occur sporadically from Senegal to the Cameroons and the Uelle will have to be regarded as *funerea*.

I believe that the foregoing facts justify the view that all steel green Indigo Birds, for which the earliest name is *chalybeata* are a single polytypic species, which occurs also in a pure green variant morph in scattered localities and grades into a blue geographical form in north-east Africa. I have not demonstrated so conclusively that the purple birds also represent a phase of the same species, but it appears to me to be at least as likely that they are a phase as that they represent a separate species. Polymorphism in Indigo Birds is in any case no less probable as an explanation than the now generally accepted polymorphism in Paradise Flycatchers. Before the purple birds are treated as a distinct species, better field evidence to support the argument is needed.

The trinomial arrangement of a polymorphic species such as this may well give rise to different interpretations. I prefer to adopt a conservative arrangement and would, from the data provided above, recognise

Vidua chalybeata *chalybeata* (syn. *aenea*)
ultramarina (syn. *neumanni*)
wilsoni (syns. *nigeriae* and *camerunensis*)
centralis
funerea (syns. *amauropteryx*, *codringtoni*,
nigerrima and *purpurascens*.)

Dr. L. Auber kindly examined some feathers of various phases of Indigo Birds. He reports that feathers other than from matt black birds show

"(i) the iridescence is not confined to the barbules inserted along the distal facet of the barb, but is seen also on the corresponding barbules inserted along the proximal facet of the barb, and

(ii) the iridescent terminal barbule portions (modified pennula) are less broadened than in *Sturnus*, their individual cells have less distinctly rectangular outlines, and each of the cells has its two terminal corners distinctly protracted into cilia."

The feathers of the matt black type show moderate broadening of the pennula (and absence of hooklets from a considerable tip portion of the vane), and thus "a certain degree of the morphological specialisation that is rendered more prominent by iridescence" in the metallic phases. This appears to support the view already advanced above that the matt black "*nigerrima*" merely represents a failure to develop the normal feather structure. The feathers of the pure green "*nigeriae*" show a higher degree of broadening of the modified pennula than in other iridescent birds, which, Dr. Auber writes, would result in a more intense green than the steel green birds. Thus the pure green phase is due to over development of certain structural features in some individuals, i.e. the reverse of the under development of the matt type.

For assistance in these studies I am greatly indebted to the British Museum (Nat. Hist.) and the Musée de l'Afrique Centrale, Tervuren, for facilities to examine material, and to Dr. L. Auber for his microscopic examination of feather samples.

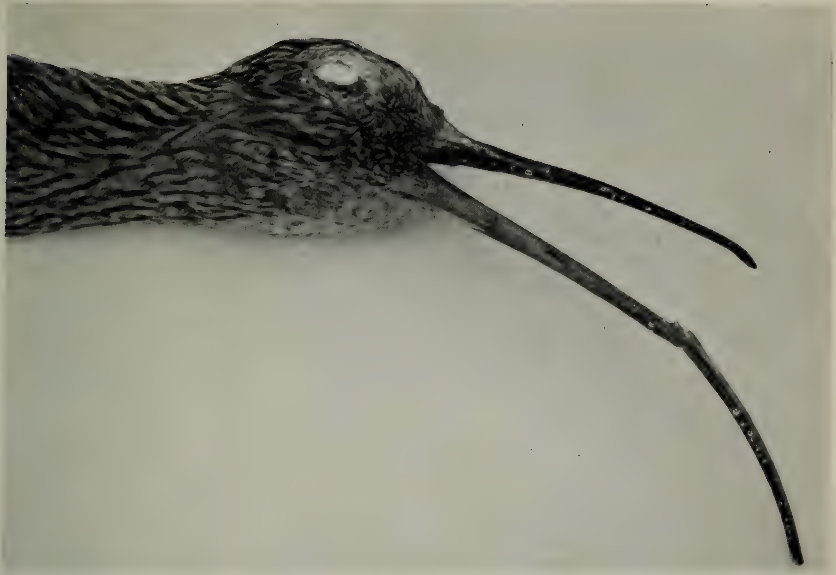
A congenital abnormality in the beak of a Curlew

by JEFFERY G. HARRISON

Exhibited at the February Meeting

Through the kindness of N. T. Davey, a member of the Wildfowlers' Association of Great Britain, I have received a Curlew *Numenius arquata* Linnaeus, which he shot on 29th October, 1962 on the Wash near Sutton Bridge, Lincolnshire.

The bird was a female in good condition, weighing 1lb. 12½oz. (weights of two females shot in December, 1962, 1lb. 14½oz. and 2lb. 4oz.). It was normal in every way except for its beak. As can be seen from the photograph, the upper mandible is grossly shortened, being 53 mm. short of the tip of the lower. In other respects, this is a normal upper mandible. The lower mandible is of normal length for a female (132 mm.), but at a point 8 mm. proximal to the end of the upper mandible there is a swelling and an incomplete fracture is present, the distal part of the fractured lower



Congenital bill deformity in a Curlew, showing the "short upper beak" and incomplete fracture of the lower mandible.

mandible being displaced downwards. The skull was prefectly developed and showed the normal partial pneumatisation, typical of the species. The rest of the body and the limbs were all normal.

The only evidence of injury in the beak is the incomplete fracture of the lower mandible. There is no doubt that this has been brought about gradually due to abnormal stresses on the unprotected projecting part, while the bird was feeding. It is remarkable that it had been able to keep itself in such reasonable condition with such a deformity, which, in my opinion, is due to the congenital defect known as "short upper beak".

Discussion: Congenital abnormalities in the beaks of wading birds are rare. Dr. James Harrison (1947) has recorded a remarkable case of a Bar-tailed Godwit *Limosa lapponica* Linnaeus with a bifid lower mandible, considered to be due to a congenital failure of the two halves of this mandible to fuse.

In a previous paper, Dr. Janet Kear and I (1962) described three types of congenital abnormalities in the beaks and skulls of wildfowl, based largely on eggs which failed to hatch at the Wildfowl Trust, the majority being wild Mallard *Anas platyrhynchos* Linnaeus. One was the condition of "short upper beak", which was found to occur either by itself or in association with acrania or meningocoele. In that paper we wrote as follows:—

"In poultry, the condition of "short upper beak" is well known, often in association with micromelia (embryos with reduced limbs). This is discussed by Waddington (1952). A recessive gene known as "short upper beak'' was extracted by Landauer (1941) from a Houdan cross-bred flock. Originally it produced extreme inhibition of the growth of the maxilla and of the long bones of the limbs, usually resulting in death before hatching. Continued selection resulted in a stock in which the effects of the gene are much less severe and the homozygotes are often viable.

One would have imagined that the presence of the ''short upper beak'' would always prevent hatching, but this is not so, for Hilprecht (1956) has recorded Mute Swans *Cygnus olor* Linnaeus, both on Lake Geneva and in Hamburg with this condition, so that they had to feed with their heads on one side. The Curlew is obviously a further case in point.

It is of interest that six examples of congenital bill deformities should have been found at the Wildfowl Trust in 1961, whereas none was found in 1962. One is tempted to wonder whether there is any underlying external cause at work. Waddington records that insulin injections to 5-day embryos produce ''short upper beak'' deformities. The recent discovery that an infertile egg of a Peregrine *Falco peregrinus* Linnaeus from Perthshire contained no less than four toxic agricultural sprays of the chlorinated hydrocarbon group brought this to mind. (Moore and Ratcliffe, 1962.) These must have got into the egg via the falcon, which had absorbed them from her prey, which would most likely be pigeon, which had eaten contaminated corn. Do seed dressings cause congenital deformities, as yet another harmful side-effect? Wildfowl and Curlew are corn-eaters at times and it is certainly something which should be investigated.

Acknowledgements: I must thank Mr. N. T. Davey for sending me the Curlew described and Mr. Peter Whitaker for sending me three others for comparison. Dr. Janet Kear and Dr. James Harrison have advised me on this note and Dr. Pamela Harrison took the photograph for me. I am very grateful to them all.

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Non-melanic, carotenistic and allied variant plumages in birds

by C. J. O. Harrison

Received 20th November, 1962

There has been some confusion in the past in the recording and description of variant plumages, especially those concerned with red and yellow pigments, and this paper represents an attempt to clarify some part of this.

Four terms are usually used in describing plumages showing variant coloration. These are:— *Melanism*, which refers to an increase in melanic pigment resulting in an abnormally dark plumage; *Albinism*, which refers to loss of pigment producing a paler or white plumage; *Erythrism*, which refers to the replacement of black eumelanin and brown phaeomelanin by a third chestnut-red melanin, giving the plumage a reddish appearance; and *Xanthism* or *Xanthochroism*, which term must infer that there is an increase in the yellow pigment resulting in a plumage which appears yellow or yellower than the normal.

It is the latter term which has been used for the type of variant plumages which are described here. It would appear that there has been confusion between two entirely different forms of plumage variation, and that some plumages which have been described as Xanthic are the result of schizochroism, while others are true carotenistic or allied variants. In desciibing and discussing such plumages it has not been possible to make an exhaustive search through literature but it is considered that the variant individuals examined, or to which reference has been found, are sufficient to indicate the different types of colour change that occur. Most of the study skins examined are those in the collection of the British Museum (Natural History) and, where reference is made to these, the reference number is given.

SCHIZOCHROISM

Within many populations of birds having plumages containing melanin pigments individuals occur in which this pigment is absent. This loss can be of two types. ''Leucistic'' individuals have melanin pigment present which colours the body, giving dark eyes and colouring the soft parts, but the melanin does not enter the feather structure and the plumage is white. ''Albinistic'' individuals show an absence of melanin in the body as well as the plumage, the most obvious indication of this being the pink colour of the eyes.

If a carotene or similar pigment is present this may not be affected by the loss of melanin. The species in which this is most clearly seen, and in which it is most widely known, is the Budgerigar, *Melopsittacus undulatus*. Loss of melanin can occur together with retention of the yellow pigment present in most of the plumage, resulting in a bird which appears yellow in colour. The converse situation can occur in which the yellow pigment is lost but the melanin remains. The structural element also present in the feathers modifies the appearance of the eumelanin, and the bird appears blue in colour. This phenomenon of the separation and loss of pigments, resulting in individuals differing in colour from the normal, the colour of which was due to the combined effect of the pigments, is called schizochroism. In the case of similar pigment separation in a species such as the Canary, *Serinus canarius*, one can describe the yellow form as a non-melanic example of melano-carotenoid schizochroism, and the equivalent form which lacks the yellow pigment as a non-carotenoid form of melano-carotenoid schizochroism. Unfortunately there is no similar term available for the Psittacidae. It has been found that the red and yellow pigments of many parrots, including the Budgerigar, are not carotenes, and these have at present no name (Fox and Vevers 1960). As a result it is not possible to define the plumage variants in similar terms although the homology can be recognised. The vernacular name used for red-eyed yellow-plumaged varieties of both parrots and finches is "Lutino". This is unsatisfactory, firstly because homologous plumages in some species are not necessarily yellow, and secondly because lutein is a particular carotene pigment which is not found in the Psittacidae and Fringillidae.

Melanic schizochroism can occur (Harrison 1963) in which the eumelanin and phaeomelanin are separated to produce either fawn or grey individuals. This is of comparatively frequent occurrence in many avian families. The non-melanic examples of melano-carotenoid schizochroism, or its equivalent form, appear in a number of species. The following list, while not exhaustive, give some idea of the range of families in which this variant can occur.

COLUMBIDAE

Many-coloured Fruit Dove, *Ptilinopus perousii.* (B. M. no. 1864. 4. 7. 3). This is one of the fruit pigeons which are normally mainly green in colour. In this specimen the plumage is yellow where it would normally be green, and white where the normal bird is grey. (See Goodwin 1959).

PSITTACIDAE

Budgerigar. *Melopsittacus undulatus.* The non-melanic form is widely bred in captivity, and is typically yellow, with white on the flight feathers and tail. The black barring on wing-coverts, mantle and head, together with the moustache streaks and spots below the bill, are replaced by unpigmented areas which appear white.

Nyasa Lovebird, *Agapornis lilianae.*
Alexandrine Parrakeet, *Psittacula eupatria.*
Plum-headed Parrakeet, *Psittacula cyanocephala.*
Ring-necked Parrakeet, *Psittacula krameri.*
Red-rumped Parrakeet, *Psephotus haematonotus.*
Blue-winged Grass Parrakeet. *Neophema chrysostomus.*

Boosey (1962) records non-melanic examples of the above species, in which those parts of the plumage which are normally green appear yellow. The absence of melanins also modifies the colour of areas of signal plumage on such individuals where the apparent colour was partly due to melanin. The red face-patch of *A. lilianae* is not affected, but the maroon wing-patches of *P. eupatria* become brick-red. The head of *P. cyanocephala* retains its rose-pink colour in the variant birds but lacks the bluish bloom of the normal individual. *P. krameri* is peculiar in that the black of the neck-ring is retained in the yellow variety. This suggests that this signal plumage is controlled by a different gene. *Psephotus haematonotus* shows sexual difference, the cock retaining some melanin and appearing pale green. The red rump is retained in the non-melanic form.

African Grey Parrot, *Psittacus erithacus.* The normal bird is grey with a scarlet tail. Non-melanic individuals are white with a scarlet tail. There is a mounted specimen of this variety in the public gallery of the British Museum (Natural History).

SYLVIINAE

Wood Warbler, *Phylloscopus sibilatrix.* Sage (1962) illustrates a non-melanic hen of this species. The bird is dark-eyed and appears to be a leucistic form. Loss of melanin is not complete. There appears to be a faint suggestion of it on the head, and a dark feather near the carpal joint of the left wing. The bird is described as primrose-yellow on head and back, and darker yellow on the shoulders and tail-coverts, with white under parts and white outer tail feathers. It was associating with a cock which showed partial melanin loss, resulting in a yellow patch on the crown, the plumage being otherwise normal.

PARIDAE

Blue Tit, *Parus caeruleus*. Rollins (1962) has described a non-melanic individual. This was white on the head, wings, and tail, with yellow on back, rump, scapulars, and under parts.

FRINGILLIDAE

Canary, *Serinus canarius*. The yellow form of the canary originated as a non-melanic form, but the distribution of yellow in many individuals suggests that mutations have arisen since in which here has been an increase in the distribution of carotene pigments over the plumage.

Siskin, *Carduelis spinus*. The non-melanic form has been bred in captivity. In an article in "Cage Birds" of 4th February 1960, R. Jefferson described and illustrated an example of this. He had bred two such birds, both cocks, which were described as yellow in colour, with faint traces of the normal melanin pattern appearing on feathers acquired at the first moult.

Greenfinch, *Carduelis chloris*. This again has been bred in captivity. Non-melanic hens are mainly white with yellow on belly, wing-flashes, and outer tail feathers. The cocks are yellow over much of the body, having a more extensive distribution of carotene pigment than the hens.

Goldfinch, *Carduelis carduelis*. Stresemann (1924) described a Goldfinch lacking melanin pigment. This bird was white with a red face-patch and the normal yellow bars on the wings.

PLOCEIDAE

Black-headed or Golden-backed Weaver, *Ploceus jacksoni*. A wild-caught specimen from Uganda (B. M. no. 1929. 1. 7. 43) is almost entirely yellow, this being deepest on the head, wings, and tail. The normal adult cock has a black head, chestnut mantle, and the feathers of wings and tail mainly black and greenish.

ESTRILDIDAE

Common or St. Helena Waxbill, *Estrilda astrild*. A specimen taken in the Sudan (B. M. no. 1887. 9. 28. 126) is white instead of the normal brown, but retains the scarlet streak through the eye, and a pink patch on the belly.

It can be seen from descriptions given here that the loss of melanin does not cause an alteration in the distribution of the other pigments present. The carotenes and other pigments appear in those parts of the plumage where they are apparent in the normal bird. It would however appear, as is the case of the weaver, that heavy melanisation of plumage may mask the carotenoid pigment also present in the feathers. Both types of non-melanic variants may retain non-melanic pigments, and the non-melanic individuals described might be either leucistic or melanistic. Both types of yellow individual have been bred in the Budgerigar. In such plumages as have been described here there is no evidence of feathers becoming yellow or yellower, but merely of melanin loss revealing pigments already present. The term ''xanthic'' or ''xanthochroic'' would appear inapplicable to such variant plumages.

CAROTENISTIC AND ALLIED VARIANTS

It has been possible to find only four examples of apparent mutations modifying the visual appearance of red or yellow pigments. Three of these are concerned with carotenes and could be called examples of carotenism, one of these being of a type which might qualify as xanthism in the strict sense of the term. The fourth example is concerned with pigment in a species of parrot. The latter example was also described by Rensch (1925) who used the term ''lipochroismus'' when describing it.

These examples appear to show four different types of variation, involving:—

a. Change in distribution of pigment.
b. Increase in the amount of pigment.
c. Change in colour of pigment.
d. Replacement of melanin by a non-melanic pigment.

Change in the distribution of the pigment, which in this case is carotene, was shown by a Goldfinch, *Carduelis carduelis*, bred in captivity by S. Evans, and described by him in ''Cage and Aviary Birds'' 13th September 1962, p. 256. According to this description the red colour, usually confined to the anterior part of the head, extends back to the black band at the back of the head, and the usual narrow grey band on the nape is replaced by red and bronze. The breast is orange, and this extends right to the under tail-coverts. The normally light brown contour feathers are a rich reddish-brown. In addition to the yellow on the flight feathers, the rump and markings on the tail, normally white, are yellow in this bird. The red and yellow carotenes, normally present in part of the plumage appear to have spread to both the unpigmented and melanised feathers.

Increase in the amount of pigment present was shown by a specimen of the Blue-headed Wagtail, *Motacilla flava flava*, collected in Africa by Dr. W. Serle, described by him (1959) and now in the collection of Dr. J. M. Harrison. Serle described the bird as orange in colour, but in a more recent examination of the specimen it was found that the colour difference was less marked than this. The normal bright lemon-yellow of the under side of the species was, in this specimen, a very deep yellow with a slight orange tint, similar to the Deep Chrome of Ridgway's colour standards. The olive-green of mantle, back and rump, was modified to a bright golden green rather similar to that found on the mantles of some tropical woodpecker species, while most of the rest of the plumage, apart from the head, was suffused with this deep yellow tint. The head was the normal pale blue and white of the adult male, but Milne (1959) has pointed out that in this species head coloration appears to be controlled by genes different from those responsible for the colour of the rest of the plumage, and varies independently.

The difference in colour between this individual and the normal members of the species is very similar to that shown by "colour-fed" canaries compared with the usual non-melanic yellow forms. In colour-feeding the individual is fed during the period of moult with food rich in red carotenes. Although the canary is unable fully to utilise red carotene or convert yellow carotene to red pigment in the way that the goldfinch is said to do, a certain amount of the red carotene is taken up and the plumage, instead of appearing pale yellow, became deep yellow or almost orange. This is purely temporary and depends on the food taken during or before the moult. One may speculate on the possibility that the abnormal colour shown by the wagtail might have been a temporary change due to nutrition rather than a permanent mutation.

To some extent the latter specimen shows evidence of the third type of variation; namely change in the colour of the non-melanic pigment. A more marked example of this was a Green Woodpecker, *Picus viridis*, recorded by Col. R. Meinertzhagen, who possesses a painting of the bird together with a tuft of feathers from it (Meinertzhagen 1963). In this species the normal green colour of most of the plumage is produced by melanin combined with a yellow pigment. In the individual concerned this yellow was mostly replaced or masked by a red pigment, so that the bird has a striking orange-red coloration. This effect can again be reproduced artificially. During a study of the loss of red colour in the plumage of captive birds of various species Rhodoxanthine, an extract of the red pigment found in Yew (*Taxus baccatus*) berries, was given to various species during the moult (Völker 1958). When this was fed to Goldfinches (*Carduelis carduelis*) it was found that the normally yellow wing bar became red. This again was a temporary effect, and one may speculate as to whether the abnormal colour shown by the woodpecker had a genetic or nutritional origin.

The last type of variation appears to be peculiar to the Psittacidae. Rensch (1925) described an example of the African Grey Parrot, *Psittacus erithacus*, in which odd grey feathers were replaced by red feathers at successive moults. The normal plumage of this species is grey, with a scarlet tail, and these new feathers resembled the tail in colour. There is a specimen of this species in the British Museum (B.M. No. 1887, 9, 28, 291) taken in Africa, in which the greater part of the plumage shows this red colour. The breast, belly and under tail-coverts are pinkish red with a few grey feathers, the upper breast and throat are grey with scattered pink feathers. The flanks, rump, upper tail-coverts, back, and tertials are a deeper red, more like that of the tail, with one or two grey feathers. The lesser wing-coverts are mainly red, and the mantle, greater coverts, and flight feathers are grey with a few red feathers irregularly distributed. Only the ear-coverts, crown, and nape, are pure grey. Some of the grey feathers of the body are tinted with red, or show an irregular distribution of grey and red pigment replacing each other on the feather. Yealland (1960) also mentions the tendency shown by this species to show red feathers in the plumage.

Boosey (1962) writing of the non-melanic variety of the Red-rumped Parrakeet, *Psephotus haematonotus*, records the following—". . . one of our yellow hens, which was for two years a normal Yellow except for a few red feathers on the rump, moulted out during 1951 with all her plumage spotted with red feathers, particularly on the wings.'' The red on the rump is normally present only in the male of this species.

GENERAL COMMENTS

Of the variant plumages described here, those in the first group cannot be regarded either as xanthic plumages or as carotenoid variants, but are simply non-melanic examples of schizochroism. This was recognised by Van Tyne and Berger (1960) who described xanthism as a form of schizochroism, giving the non-melanic form of the Budgerigar as an example.

The remaining four examples all represent variants in which the yellow or red pigments present differ from the normal in quantity, distribution, or appearance. The first three might be described as examples of ''carotenism'' if this term is used in the rather vague and loose sense in which the terms albinism and melanism are usually applied; but it is probably true to say that these are not covered by current terminology.

The schizochroic variants described could potentially occur in any species having both melanic and non-melanic pigments. The carotenistic variants are either accidents of nutrition, or else they represent new mutations within the species concerned.

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The differences between *Pitta guajana guajana* and *P.g.affinis*

by A. Hoogerwerf

Received 26th January, 1962

On an earlier occasion I published a paper[1] on this subject. After studying some more material I add a few notes.

Voous[2] identified a bird of this species from Mt. Slamet (western part of Central Java) as West Java's *affinis*. The sex of this bird is not mentioned but on account of the wide breast band (6 mm.) I am inclined to consider it a male. It is classified as *affinis* because of the narrow breast band and the yellowish-buff under parts.

As pointed out in my earlier paper I do not think it justified to consider both these characters as of subspecific value. In the subspecies *affinis* the variation in the width of the breast band is important and this seems also to be the case in birds belonging to the nominate race because in the three females before me this band varies from 2.5 to 5 mm.

Birds belonging to this species appear to vary considerably in the ground-colour of the under parts. The remarks of Hartert that in the female this colour is not white but yellowish-buff proves not to be correct, because in the females too there is much variation on this point. Moreover it is of some importance to point out that the colour impressions one gets from the under parts are highly influenced by the direction whence the light falls on the skin. In the two females before me belonging to *guajana*, the two of *affinis* and two perhaps intermediate birds from Central Java, this tint varies from nearly white to buffy light brown in the two birds from Central Java and also the two specimens secured by me in Udjung Kulon (West Java)—which both had very small ovaria—vary importantly in this respect. The breast band in these last mentioned four birds runs from 3 to 6 mm.

As in the males and females the nearly white colour on the chin, throat and foreneck varies considerably as is very noticeable in both females from Central Java mentioned above.

On the upper surface too there are apparently no other variations than individual ones. There is much difference in the colour of the mantle, back and wing-coverts. Some very dark males originate from Bogor and an extremely light male comes from Indramaju: both localities are situated in West Java. The Udjung Kulon females differ importantly too in this respect but one of them—with very dark upper parts—is perhaps not fully adult: it shows dark spots on the pileum and a little brown in some white patches on the wing-coverts.

There is furthermore some variation in the extent and tint of the yellow superciliary streak and in the colour of the upper tail and coverts; also the quantity of white on the wings may vary considerably.

Post-mortem changes in the plumage of these birds seem to be of little importance, provided the material is not preserved in liquids, for the dark skins collected in 1919 and in 1938 near Bogor and Djakarta do not differ much from the dark bird recently shot in Udjung Kulon and the light female from this last area agrees well with a similar bird secured near Madiun in 1935.

Size differences of some importance within the same subspecies could not be established in our material but it is again evident from the few measurements given below that birds of both sexes of *guajana* average larger than *affinis*, which confirms my earlier findings.

A female obtained in the neighbourhood of Semarang (Central Java) with a wing length of 112 mm. seems to belong to the nominate race, known from East Java. A second female from East Java has a wing of 108 mm. but a rather heavy bill, a third and fourth female from Central Java, with a wing size of 107 and 108 mm. seem to be somewhat intermediate between both these subspecies, though perhaps closer to *guajana*.

The discrepancies between the figures given below and those published in my earlier paper, are caused by the fact that the wings were now measured pressed down along the ruler and formerly in the natural position, whereas the bill was now measured along the culmen and formerly from gape to tip.

Measurements: (*in mm.*).

♂♂ Wing; *guajana:* 109, 111, 111, 112, 115; *affinis:* 104, 105, 106, 107, 109 mm.

Tail; *guajana:* 62, 66, 68, 68, 75; *affinis:* 67, 69, 71, 74, 75 mm.

Culmen; *guajana:* 23, 23.1, 23.5, 23.5; *affinis:* 20.5, 20.5, 21.5, 22, 23.9 mm.

Max., min. and average measurements:

	guajana	*affinis*
Wing:	$\frac{109\text{–}115}{111.60}$	$\frac{104\text{–}109}{106.20}$
Tail:	$\frac{62\text{–}75}{67.80}$	$\frac{67\text{–}75}{71.20}$
Culmen:	$\frac{23\text{–}23.5}{23.28}$	$\frac{20.5\text{–}23.9}{21.68}$

♀♀ Wing; *guajana:* 108, 112; *affinis:* 102, 104 mm.

Tail; *guajana:* 61, 62; *affinis:* 58, 63 mm.

Culmen; *guajana:* 22.1, 20; *affinis:* 19, 22.8 mm.

Max., min. and average measurements:

	guajana	*affinis*
Wing:	$\frac{108,\ 112}{110}$	$\frac{102,\ 104}{103}$
Tail:	$\frac{61,\ 62}{61.50}$	$\frac{58,\ 63}{60.50}$
Culmen:	$\frac{22.1,\ 20}{21.05}$	$\frac{19,\ 22.8}{20.9}$

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[1] Hoogerwerf, A. Over het verschil tussen *Pitta g. guajana* en *Pitta guajana affinis; Zoölogische Mededelingen*, 28, 1947, p. 267/70.

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CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

Proofs must be returned without delay. No changes may be made at this stage, other than corrections. At the discretion of the Editor, the Club will pay for a reasonable number of monochrome blocks, which the contributor may retain for his own use.

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Other correspondence should be addressed to the Hon. Secretary, Dr. J. G. Harrison, "Merriewood", St. Botolph's Road, Sevenoaks, Kent.

DINNERS AND MEETINGS FOR 1963

21st May, 17th September, 15th October, 19th November and 17th December.

(The October or November meeting will be held jointly with the B.O.U.)

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The six hundred and eighth meeting of the Club was held on the 21st May, 1963 at the Rembrandt Hotel, London.

Chairman: Major-General C. B. Wainwright

Members present, 26; guests 8; Honorary Associates (Overseas) 4; total 38.

The summary of his talk was kindly contributed by Dr. G. V. T. Matthews, Scientific Director of the Wildfowl Trust, who addressed the meeting on

Sense and nonsense in Mallard orientation

Mallard from Slimbridge fly off to the north-west, no matter in which direction they have been transported or how far. This does not depend on the topography of the release point, nor on the age, sex or previous experience of the birds; it is shown throughout the year, by day and also at night, when the birds' flight path is revealed by a small leg-lamp (detachable in water).

Different breeding populations have different orientation tendencies. Those from London fly off south and east, as do duck from Stockholm, Sweden. At Peakirk, Northamptonshire, birds caught in early autumn fly north-westerly, but in winter, when many migrants from the Baltic are in, the birds scatter widely, as would be expected in a mixed population.

There is some evidence that the orientation is not a learned one. It is not simply an escape reaction, nor concerned with the re-assembly of a scattered flock—flocks fly even more decidedly north-west than do individuals. It does not last for long, subsequent recoveries being scattered in all directions. While the biological function is thus obscure we can call it 'nonsense' orientation. Certainly it helps to make nonsense of some experiments on bird navigation. Thus the immediate homeward orientation claimed for some stocks of homing pigeons can more satisfactorily be explained in terms of a northward 'nonsense' orientation.

The consistent orientation provides a useful tool for investigating the methods by which birds determine directions. By day the sun is the reference point. Heavy overcast results in disorientation. Birds with their internal 'clocks' reset (by being kept in an artificial day out of phase with the normal one) fly S.W. if six hours fast, N.E. if six hours slow. With clocks twelve hours out they go S.E. around sunrise and sunset but it appears that their sun-angle correcting mechanism unwinds during their 'night', as if the sun ran backward after sunset, through south at midnight.

Under the stars, time does not appear to enter into the calculations, and directions are probably determined from the alignment of the constellations. Under the moon alone the indications are that the angle flown must again be continuously adjusted according to the time of night (and the day of the month).

The Ten-year Scientific Index

The scientific index of the *Bulletin* covering the period 1950 - 1959 inclusive has now been published at the price of ten shillings.

Application should be made to the Hon. Treasurer, P. Tate, 4 Broad Street Place, London, E.C.2.

Donors to the Index Fund will have received a complimentary copy.

The Lyre-tailed Honey-Guide in the Ivory Coast

by HARRY A. BEATTY

Received 4th February, 1963

The history of ornithological observations in the Upper Guinea forest area of West Africa dates back to the time of its early exploration and includes the names of many notable collectors. Yet not once was any mention made of *Melichneutes robustus*, the Lyre-tailed Honey-Guide, as occurring there. No specimen was collected; no one reported seeing the bird or even hearing its nasal tooting in the sky. It has been seen in Southern Nigeria, but the forest there is connected with the great block of forested Lower Guinea, where *Melichneutes* is now known to be very widely distributed.

It was my good fortune in 1951–52 to spend about twelve months in the Gaboon, where I visited Mr. P. C. Rougeot at Tshibanga; and at seven different localities I became thoroughly familiar with the strange noises made by the Lyre-tail as it dives from the sky toward the tree-tops.

Early in 1960 I started again on an extended trip in West Africa to make collections for the Peabody Museum of Yale University at New Haven, Connecticut. Abidjan on the Ivory Coast was reached on the 17th of March, and on the 31st of March I left for the mountains of the interior. After a flight to Man, three more days of travel by motor lorry brought me to the village of Yále, at the very base of the Nimba Mountains. With the aid of a local guide I was able to reach an altitude of 6,000 feet on Mt. Nimba by the 5th of April.

The constant drizzle and frequent electrical storms soon forced us to abandon our mountain camp, and we returned to Yále village on the 10th of April. Thereafter excursions were made daily from that village into the mountains, and once or twice a week we climbed up the steep slopes to the ridge at the summit. This whole region, montane and lowland alike, is covered with jungly rain forest, its tall trees and undercover closely packed, and interlaced with a tangle of rope-like lianas.

The presence of the Lyre-tail in this forest became evident almost at once. At 8 a.m. on the 4th of April, as my guide and three other men were entering the village with me, the unmistakable sounds made by a Lyre-tail in flight came through the crisp air from the direction of the forest. We stood listening, fascinated by the noise, which seemed at first to come from afar, yet gradually to approach us. We agreed that its maker must be about three-fourths of a mile away as the performance ended. This was a morning of brilliant sunshine, yet with mist in the valley. The Lyre-tail gave its serenade four times, only at intervals.

Thereafter it seemed to repeat its performance almost daily until the 4th of May. We listened to it on thirteen different days during that period, sometimes only once in a day, but more often two, three, or four times, and on the 19th of April even five times. On the 12th of April a Lyre-tail was judged to have passed within 200 yards of the village in one long continuous flight of almost a half-mile. We heard the bird only on sunny mornings, around 8 or 9 o'clock, but none was heard after the 4th of May, although I remained in the vicinity until the 12th of June. On wet, misty mornings the Lyre-tail remained silent, at least until the fog had been dissipated and the sun came out warm and brilliant.

Many natives, here of the Yakoba tribe, were familiar with the noise and referred to it as ''zierre''; but not one of them seemed to know it was produced by a small bird. A group of men and women from a place one full day's walk to the south-east of Yále assured me that they frequently heard the same sounds while working in their coffee plantations. I was convinced they knew it well, but all my efforts to secure a specimen of *Melichneutes* went unrewarded.

On my way back to the coast I stayed for thirteen days at Man, but never did I hear the Lyre-tail there. In any case we may now be certain that the range of the elusive Lyre-tailed Honey-Guide is not restricted to the rain forests of Lower Guinea, including Southern Nigeria, but extends westward to the high forests of the Nimba Mountains, near the junction of the Ivory Coast, Guinea, and Liberia. This is at approximately 7½ degrees of north latitude and 8 degrees of west longitude, some 170 miles inland from the coast.

A Gadwall with a white neck ring and a review of plumage variants in wildfowl

by James M. and Jeffery G. Harrison

Received 27th December, 1962

Through the kindness of the Wildfowl Trust, we have recently received on loan the skin of an adult drake Gadwall *Anas strepera* Linnaeus with a pronounced white neck ring. The bird was shot by Lord William Percy on 25th February, 1913 on South Uist, Outer Hebrides, and was presented to the Trust by him together with the rest of his wildfowl collection.

In our previous note (Harrisons 1959 A) we have recorded this variant in three out of twelve drake Gadwall in our collection, so that it is reasonably common. This example is, however, quite the most marked of any we have seen, the ring being almost comparable to that of a drake Mallard *Anas platyrhynchos* Linnaeus, as can be seen from the photograph. In addition, the ground colour of the neck and throat, instead of being whitish-brown, is pale chestnut, which also extends to a lesser degree onto the cheeks. On account of these two striking variations, Lord William Percy had labelled the bird as a hybrid Gadwall X Pintail *Anas acuta* Linnaeus, which is an understandable error.

On re-examining our series of Gadwall, we find that one of our three examples (November 1933, Rainham Hall, Kent) also shows this chestnut colour on the throat and neck, as does a further unrecorded example with a white neck ring shot in north Kent in November 1959 (coll. J.M.H.) and it would seem that these two variant characters may be linked.

The South Uist bird and the one we recorded from Lough Erne, Co. Fermanagh, were presumably of Icelandic nesting stock and it is noteworthy that on 1st July, 1962 a drake Gadwall was seen by one of us (J.G.H.) with a well-marked white neck ring, in Reykjavik.

The presence of the white neck ring variant in drake Gadwall probably provides further evidence of the close relationship of this species to the Falcated Teal *Anas falcata* Georgi, in which the drake as part of the elaborate pattern of the head and neck, also has a constant and well developed white neck ring. We were wrong in attributing this character in our earlier paper (*loc. cit.*) on Gadwall variants to a Mallard relationship.

Discussion: It is desirable to consider the significance of this and the other variant characters which have been described in wildfowl, both with and without the influence of interspecific hybridisation. C. J. O. Harrison (1963) considers that these variant characters have no greater phylogenetic significance than that the species displaying them belongs to the Anatidae, or even to some higher taxonomic unit, whereas we regard many of these characters as indicative of a closer relationship at the levels of genus and species. That plumage characters are sufficient to justify this assumption is supported by Delacour (1956) who writes: "There is even good evidence that the Shovelers do not constitute a monophyletic group: the South American Red Shoveler (*platalea*) and the Cinnamon Teal (*cyanoptera*) on the one side; the Australian-New Zealand Shoveler (*rhynchotis*) and the Blue-winged Teal (*discors*) on the other, *greatly resemble each other in plumage pattern, so nearly that the closest relationship must be assumed**".

The following variants appear to provide additional evidence of affinity in races or in species well known to be closely related on other morphological and behavioural characters:—

1. VARIANTS WITHIN THE SPECIES

(*a*) *The spotted breast shield of the Mallard.* This is present throughout the range, but only as an unusual variant in the typical race *Anas p. platyrhynchos*, being increasingly common in the Icelandic population and constant in the sedentary Greenland race *Anas p. conboschas* Brehm (Harrison, J. G. 1944). This is a good example of Huxley's morphic cline.

(*b*) *The black V on the chin of the Eider.* This is constant in drakes of the

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*Our italics.

Pacific Eider *Somateria mollissima v-nigra* and is found occasionally in the other races (Delacour 1959). It is a constant feature of the King Eider, *Somateria spectabilis* Linnaeus, and is therefore another example referable to Group 2. It is even present in ''ghost'' form in a first summer drake obtained in west Greenland in 1963.

(*c*) *Transient white neck ring in Pintail.* See white neck spots and rings, Group 3a.

2. VARIANTS RESEMBLING A CLOSELY RELATED SPECIES

(*a*) *The barred and spotted breast shield of the Wigeon.* This is a not uncommon variant in drake European Wigeon *Anas penelope* Linnaeus and the same markings are constant in the Chiloë Wigeon *Anas sibilatrix* Poeppig (Harrisons 1957 A).

(*b*) *The barred underparts of the Northern Shoveler.* Three of a series of 33 drake Northern Shoveler *Anas clypeata* Linneaus had dark barring covering the whole of the underparts, a character found in the Cape Shoveler *Anas smithi* (Hartert) and the Australasian Shovelers *Anas rhynchotis* Latham. (Harrisons 1959 B).

(*c*) *The pale facial crescent of the Northern Shoveler.* This is a transient character only shown particularly by first year drakes in moult and is beautifully illustrated by Peter Scott in Delacour (1956). This character is constant in adult drakes of the Australasian species *A. rhynchotis* (Harrisons 1959 B).

(*d*) *The white facial band of Tufted Duck.* This is a frequent variant in female Tufted Duck *Aythya fuligula* Linnaeus and it is occasionally as extensive as in female Greater Scaup *Aythya marila* Linnaeus; Lesser Scaup *Aythya affinis* Eyton and New Zealand Scaup *Aythya novaeseelandiae* Gmelin. (Harrison, J. G. 1954 A). It is illustrated by Peter Scott in Delacour (1959).

(*e*) *The dark flecking on the under parts of Tufted Duck and Greater Scaup.* This is a rare variant in the winter plumage of these two species (Harrisons 1961 A : 1962 A), but constant and striking in the New Zealand Scaup.

(*f*) *The white under tail-coverts of the Red-crested Pochard.* We have one duck Red-crested Pochard *Netta rufina* (Pallas) in our collection with this character and Mr. Eric Gillham (*verbatim*) has seen others in St. James' Park, London. It is a constant feature of the Rosy-bill *Netta peposaca* (Vieillot).

(*g*) *The white under tail-coverts of the Tufted Duck.* This is a common variant in female Tufted Duck and is illustrated by Peter Scott in Delacour (1959). It is a constant feature in the Ferruginous Duck *Aythya nyroca* (Güldenstädt), Australian White-eye *Aythya australis* Eyton, Madagascar White-eye *Aythya innotata* (Salvadori) and Baer's Pochard *Aythya baeri* (Radde).

(*h*) *The pink breast of the Smew.* One example of an adult drake Smew *Mergus albellus* Linnaeus with a patch of pink on the upper breast is on record (Harrison, J. G. 1954 A). The tint was the same colour as on the breast of the drake Red-breasted Merganser *Mergus serrator* Linnaeus.

(*i*) *The black flecking on the belly of the Grey Lag and Pink-footed Goose.* Black flecking, almost amounting to small bars, is a common variant in the Grey Lag Goose *Anser anser* (Linnaeus) and we have one Pink-footed Goose *Anser fabalis brachyrhynchus* (Baillon), in which it is present as a minimal expression. It is constant and striking in the White-fronted Goose *Anser albifrons* (Scopoli) and Lesser White-fronted Goose *Anser erythropus* (Linnaeus).

(*j*) *The white facial band in the Grey Lag and Bean Goose.* Narrow facial bands of white are not uncommon in the Grey Lag Goose and the races of the Bean Goose *Anser fabilis* (Latham), including the Pink-footed Goose. This character is highly developed in the White-fronted and Lesser White-fronted Goose. It is also frequently seen in the domestic grey goose, when it may be much broader.

3. VARIANTS PRESENTING CHARACTERS WHICH ARE MORE WIDESPREAD WITHIN THE ANATIDAE.

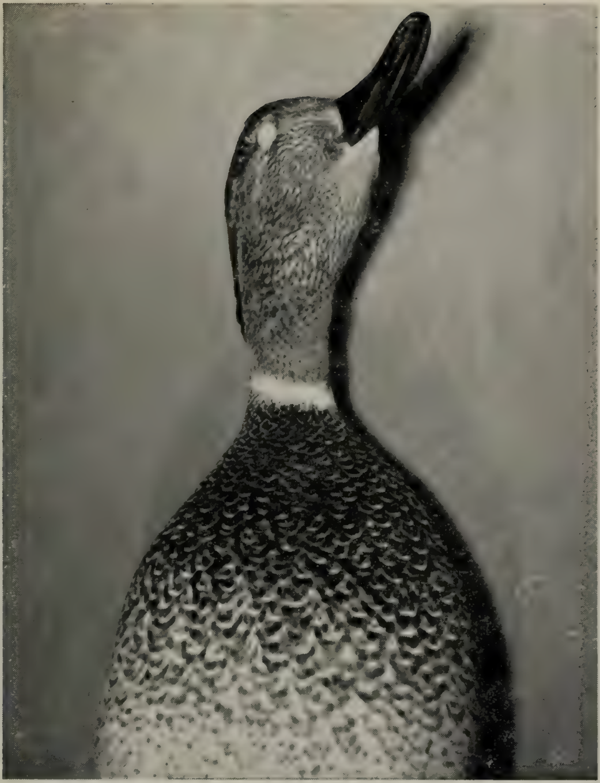
Certain other well-marked variations have been described, which probably also indicate degrees of affinity.

(*a*) *White neck spots and rings.* This character when seen in its minimal form takes the shape of a white triangular spot anteriorly at the base of the neck. In its complete form it is a ring as in the drake Mallard. This is a widespread and not uncommon variant in drake European Green-winged Teal *Anas crecca crecca* Linnaeus (Kuroda 1937; Harrisons 1962 B) and has been recorded in a Yellow-billed Teal *Anas flavirostris flavirostris* Linnaeus (Harrisons 1958 B). The frequency of this variant and the known relationship of the Green-winged Teals to the Mallard make it probable that these examples could have been included in our second group. Similarly, the present variant Gadwall we believe indicates a relationship to the Falcated Teal, although the Mallard and the Falcated Teal are two more distantly related species of dabbling duck, in which the white neck ring has been strongly developed.

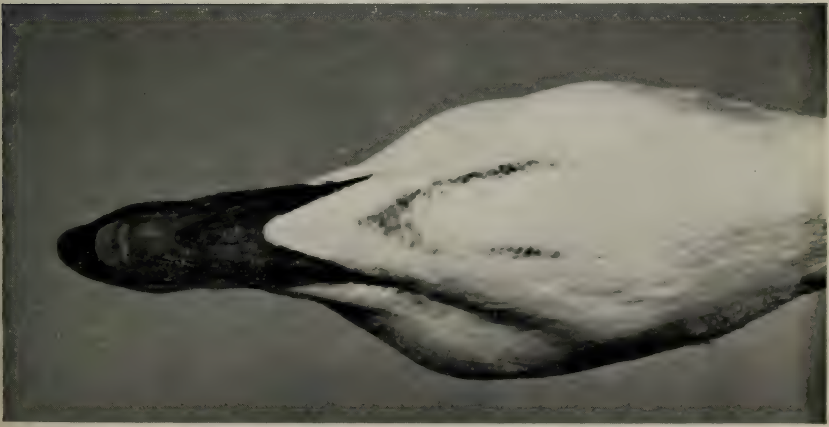
The drake Northern Shoveler commonly shows a white neck ring as a transient character during moult (Harrisons 1959 B) and a white neck ring is revealed in a hybrid between an Argentine Red Shoveler *Anas platalea* Vieillot and a Northern Shoveler (Harrisons 1963 A). Both of these characters we believe support Delacour's views (1956) that the "Blue-winged Duck" are evolved from Mallard. Peter Scott has also informed us (*in litt.*) that some drake Northern Pintail *Anas acuta acuta* also show transient white neck rings during the eclipse moult. This species is also close to the Mallard and when in this plumage shows a strong resemblance to the bright type of drake Kerguelen Pintail *A. a. eatoni* Sharpe, as is illustrated by Peter Scott in Delacour (1956). This is therefore a third example of a variant within the species (Group I), as already described for Mallard and Eider Duck.

At the same time it should be noted that white neck rings are widespread in the Anatidae, occurring in some races of the Canada Goose *Branta canadensis* (Linnaeus), in the Australian Shelduck *Tadorna tadornoides* (Jardine and Selby), the New Zealand Brown Teal *Anas aucklandica nesiotis* (Fleming) and possibly the Harlequin Duck *Histrionicus histrionicus* (Linnaeus). We do not think that this makes any difference to our conclusions on Teal and Shoveler variants.

In addition, white neck spots occur as part of an albinistic pattern revealed by inbreeding in the Mandarin *Aix galericulata* (Linnaeus) and



Gadwall drake with white neck ring variant.



Drake Eider, showing well-marked black V on chin. Hatched from Icelandic egg and died in March 1961 when three years old.

in Salvadori's Duck *Anas waigiuensis* (Rothschild and Hartert), probably from the same cause; while the white ring of the Mallard under these conditions enlarges to produce a pattern similar to the Northern Shoveler (Harrisons 1961 B).

(*b*) *White chin spots.* These occur as common variant features in drake Red-crested Pochard, European Pochard and Tufted Duck and are constant in the Ring-necked Duck *Aythya collaris* (Donovan) and the Ferruginous Duck. A white chin spot has been recorded as a feature in an inbred Mallard population and in the Mandarin and Salvadori's Duck (Harrisons 1961 B). It is a prominent character in some Pochard X Carolina *Aix sponsa* (Linnaeus) hybrids and in Pochard X Tufted Duck.

(*c*) *Bimaculated facial pattern.* This is one of the most difficult characters to evaluate and is seen in its extreme form as a normal character in drake Baikal Teal *Anas formosa* Georgi, as well as some ducks of the species, (Harrison, J. M. 1958 A), but is also present to a lesser degree, as pointed out by C. J. O. Harrison (1963), in both sexes of the Chiloe Wigeon, duck Velvet Scoter *Melanitta fusca* (Linnaeus), duck Scaup (summer plumage only) and duck Harlequin *Histrionicus histrionicus.* In our paper on plumage sequences in Northern Shoveler (1959 B) we stated that we thought the pale facial crescent of the Australasian and Northern Shoveler is homologous with the anterior half of the bimaculated facial pattern, a view which C. J. O. Harrison supports. This, therefore, brings into this group the Blue-winged Teal *Anas discors* Linnaeus, the Australasian Shoveler, the Bronze-winged Duck *Anas specularis* King, the drake Harlequin and Barrow's Goldeneye *Bucephala islandica* (Gmelin). This then links with the loral spot of the Goldeneye *Bucephala clangula* (Linnaeus) and the White-backed Duck *Thalassornis leuconotus* Eyton.

As a rare variant, a bimaculated facial pattern occurs in drake European Green-winged Teal (Harrison, J. M. 1954 B) and in albinistic Mallard (Harrison, J. M. 1959 C). In hybrids, a pattern remarkably similar to drake Baikal Teal is revealed in European Green-winged Teal X Mallard —the original "Bimaculated Duck" (Meÿer 1857); X Shoveler (Payn, W. H. 1949; Harrison, J. M. 1954 B); X Pintail (Meinertzhagen 1930; Sage 1960): American Green-winged Teal *Anas crecca carolinensis* Gmelin X Pintail (Sage 1960): Wigeon X Shoveler (Harrison, J. M. 1959 D): Mallard X Grey Duck *Anas supercilliosa* Gmelin (Manson-Bahr 1953): Pintail X Red-crested Pochard and as a crescent only in Red Shoveler X Shoveler (Harrisons 1963 A). It is not revealed, however, in a hybrid Wigeon X European Green-winged Teal (Harrison, J. M. 1962 C). It was on these grounds that the Baikal Teal was presumed to show a primitive and basic pattern within the Anatidae (Harrison, J. M. 1953).

4. VARIANTS TOWARDS AN UNDIFFERENTIATED PLUMAGE

Three species in which the drakes normally have white bellies, have been recorded with well-marked spotting. This includes Gadwall (Harrisons 1959 A); Teal and Pintail (Harrisons 1963 B).

5. VARIANTS IN OTHER GROUPS

These variants are not limited to wildfowl. Similar findings have been recorded in Great Spotted Woodpeckers *Dendrocopus major* (Linnaeus) and Jays *Garrulus glandarius* Linnaeus (Harrison, J. M. 1951). Several examples of the Robin *Erithacus rubecula* Linnaeus have been obtained in Britain showing the lower part of the gorget as a broad dark greyish band as in *Luscinia a. akahige* (Temminck) from the Far East and similarly two Bullfinches *Pyrrhula pyrrhula nesa* Mathews and Iredale from Britain have been found with characteristics of the eastern *Pyrrhula p. griseiventris* Lafresnaye (Harrison, J. M. 1946; 1957 B).

Summary and Conclusion

1. The white neck ring variant in drake Gadwall is discussed and is shown to be linked with a pale chestnut ground colour on the throat, neck and cheek.

2. Other variants in the Anatidae are summarised. These fall into four groups:

    1. Variants within a species—in Mallard Pintail and Eider Duck, the former being a good example of a morphic cline.
    2. Variants resembling a closely-related species—eleven examples are given, which taken as a whole, provide further evidence of the relationships involved.
    3. Variants presenting characters which are more widespread within the Anatidae. This includes white neck spots and rings, white chin spots and the bimaculated facial pattern.
    4. Variants towards an undifferentiated plumage—three examples are given.

It is our opinion that all the variants in groups (1) and (2) provide indisputable evidence of an evolutionary relationship, as do many of those in group (3).

We see nothing against C. J. O. Harrison's view that certain "signal characters"—for example "bimaculation"—are patterns common to the Anatidae, which have become recessively dominant in some species, but remain latent in others. Nevertheless, as we have shown, if two closely related species are considered, in which a "signal character" is well developed in one, but absent in the other, there is a greater chance that variants of the latter will reveal "signal characters" of the former, rather than of some more distant species. This we regard as further evidence of a close phylogenetic and evolutionary affinity between the two. Such discontinuous variants can be very striking and precipitate.

C. J. O. Harrison has pointed out that within a family, the evolution of "signal characters" for species recognition is likely to be the same only in widely separated species and the closer the species, the greater the dissimilarity is likely to be. The evolution of the white neck ring in Mallard and Falcated Teal illustrate this. Their ranges overlap, but in the latter the ring is part of an elaborate pattern, in the former it is simple. Closely related to the former are the Green-winged Teal and to the latter, the Gadwall. None have white neck rings, but it is surely more than coincidence that these species should be the ones to reveal as variants both white neck spots and well-developed rings?

"Signal characters" have been quoted as being a safeguard against hybridisation. This is probably particularly true of the Anatidae of the Northern Hemisphere. It is curious therefore that certain hybrids should so closely resemble another species and when one remembers that so many hybrids of the Anatidae are fertile, this would seem to favour the chances of further hybridisation.

Acknowledgements:

We are grateful to Dr. Geoffrey Matthews, Scientific Director of the Wildfowl Trust for the loan of the Gadwall specimen described and to Dr. Pamela Harrison for the photographs; also to Mr. C. J. O. Harrison of the British Museum (Natural History) for permitting us to see his paper on the Estrildidae before it went to press. Dr. Edmund Gleadow kindly presented us with the drake Eider illustrated here.

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Nidification of the genus *Melanocharis* Sclater (Dicaeidae)

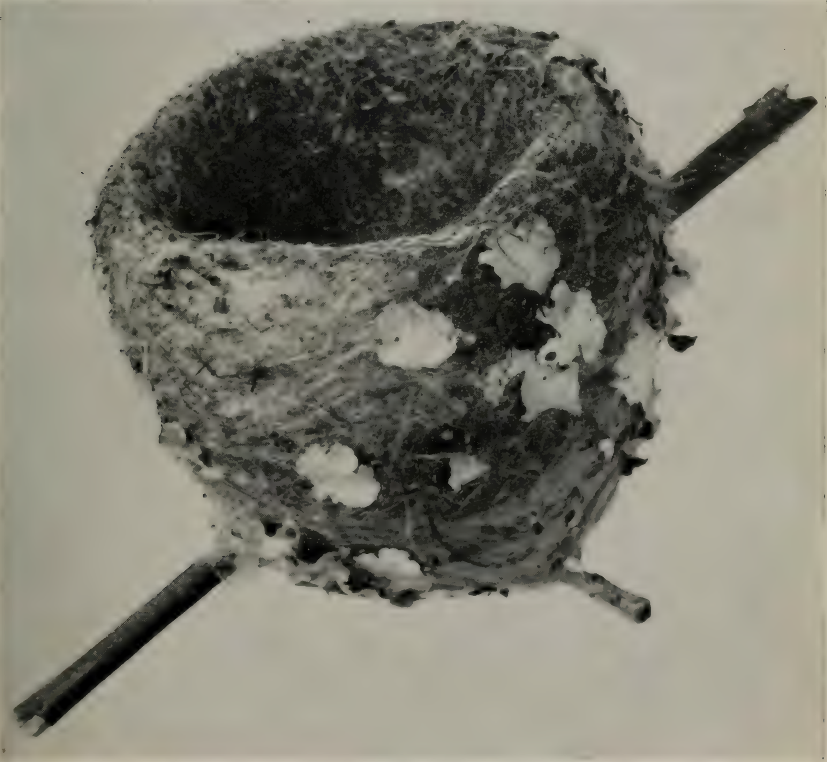
by S. A. Parker

Received 28th May, 1963

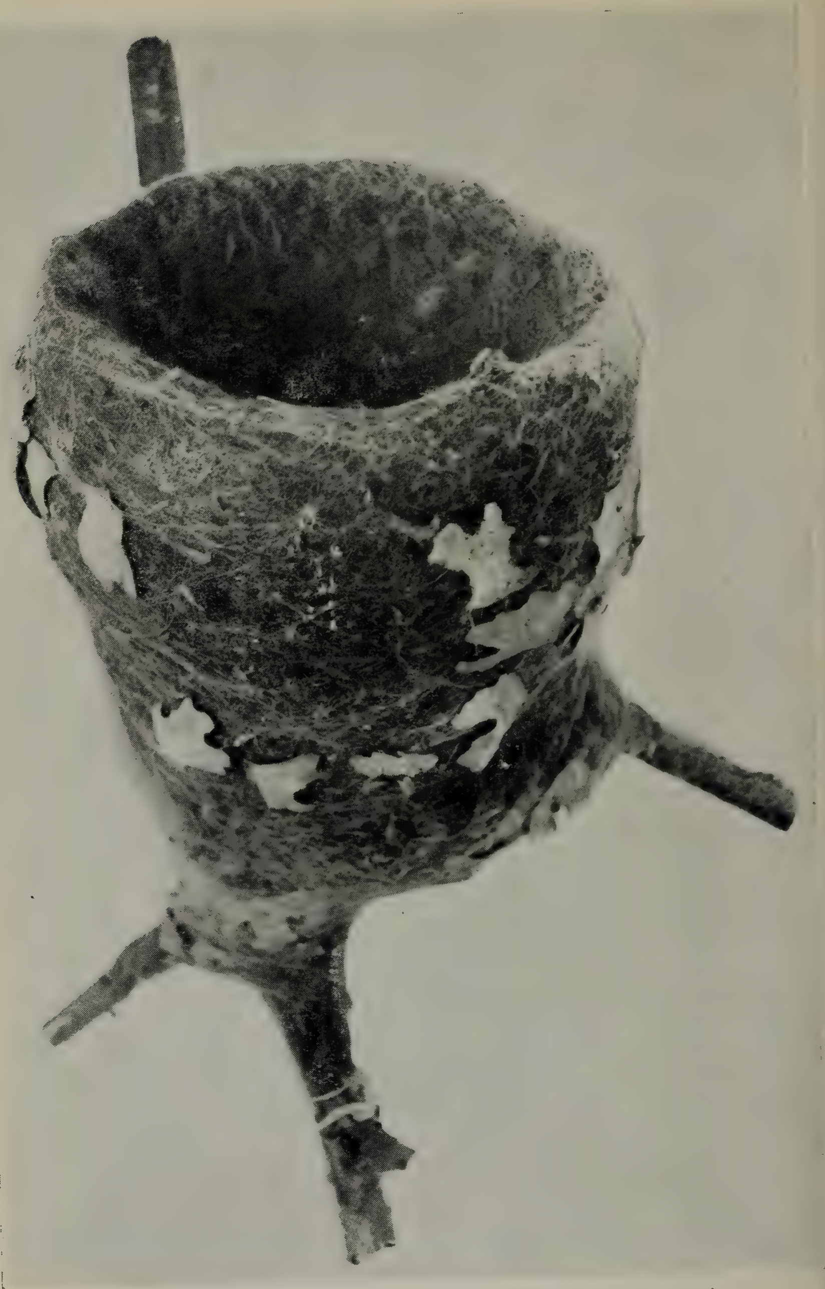
Mayr and Amadon (1947, p. 12), state that the nidification of the New Guinea flowerpecker genera *Melanocharis*, *Oreocharis* and *Rhamphocharis* is unknown. A revision of part of the egg collection in the British Museum of Natural History has brought to light the nests and eggs of two species of *Melanocharis*, *M. nigra* (Lesson) and *M. striativentris* Salvadori; the eggs of the latter were described by Ogilvie-Grant (1912, p. 12–13). The nest and egg of *M. nigra* were collected in 1906 by C. Wahnes in the Sattelberg Range, Huon Peninsula, for W. Rothschild. The nest and eggs of *M. striativentris* were obtained by Emil Weiske during 1899–1900, at 5,000 ft. on the Aroa River, south-east New Guinea.

Nests

The nest of *M. nigra* (B.M. No. N.193.457) is an exquisitely woven, unlined cup of umber-brown fern scales, smoothly rounded inside and out, and as deep as it is broad. It is built on to the lateral fork of a horizontal twig (which has been incorporated into the base of the nest) and covered externally, especially basally, with a thin meshing of white plant



Nest of *Melanocharis nigra* Sattelberg, Huon Pen. New Guinea.
x 1½ natural size.



Nest of *Melanocharis striativentris* Aroa R., 5,000′. S.E. New Guinea.
x 1½ natural size.

down and seed pappi; some of the finer strands may well be spiders' silk. It is decorated externally with pieces of a lichen (*Parmelia* sp.), the black lower cortices against the nest and the creamy upper sides facing outwards, in which position the lichen naturally grows. Measurements in mm.: external diam. 51, internal diam. 32, ext. depth 51, int. depth 23.

The nest of *M. striativentris* (B.M. No. N. 60. I.) is similar in shape; its larger size reflects the relatively larger owner. It is a tightly woven, unlined cup of terra-cotta fern scales, bound with plant down and pappi (and spiders' silk?) to the fork of a twig growing downwards at an angle of 50° from the horizontal, and thinly covered externally with the same material. The fern scales used here are much finer than those in the first nest, and the interior of the cup has the appearance of baked clay. This nest is also decorated externally with a lichen (*Sticta laciniata* [Swartz] Ach.), the creamy-green upper cortices facing outwards, though as the under side of this lichen is similar in colour to the upper, the birds have occasionally placed a piece on the nest lower cortex outwards. Measurements in mm.: ext. diam., 62 int. diam. 42, ext. depth 74, int. depth 27.

Eggs

The egg of *M. nigra* (B.M. No. 1941. 9.4.925) measures 17.9 x 14.3 mm., and almost fills the bottom of the nest. It is ovate and fairly glossy; the ground colour is white, faintly pinkish; blotches and streaks of umber, pale purplish-browns and secondary lilac-greys are distributed over the surface and form a concentrated zone around the larger end.

The c/2 of *M. striativentris* (B.M. No. 1901. 7.4.63–4) has already been described by Ogilvie-Grant (*loc. cit.*). Only one egg is measurable; the other is represented by a large fragment. The whole egg is ovate and measures 20.4 x 14.9 mm. It resembles that of *M. nigra* closely, although its markings are darker shades of the same colours, and the zone occurs nearer the pole of the egg, giving it a capped appearance.

All three eggs are similar to those of *Dicaeum agile*, another flowerpecker, though much less heavily marked.

Discussion

Rand (1942, p. 513) describes a nest of *Paramythia*, another New Guinea flowerpecker. This nest was in the dense branches of a shrubby bush on the forest edge, and not far above the ground. (The sites of the *Melanocharis* nests are not recorded). It was a large, untidy cup composed chiefly of moss-like hepatics, with some lichens and semi-woody stems throughout, and had a scanty lining of fine grass stems, rootlets, etc. In the bottom of the nest was a substantial pad of fern scales. It thus differs somewhat from the nests of *Melanocharis* in the nature of the materials, the only mosses and hepatics found in the nests of *nigra* and *striativentris* being small pieces of *Floribundaria* and *Lejeunea*, which were detected on the outsides with a hand lens. It agrees in general shape and use of fern-scales in the construction, however. Apart from the hole-nesting *Pardalotus* (which also constructs domed nests), *Paramythia* and *Melanocharis* are the only dicaeids known to build cupshaped nests. *Dicaeum* and *Prionochilus* (= *Anaimos*) make pensile nests with side entrances.

Mayr and Amadon (*loc. cit.*) and Salomonsen (1960) postulate two groups within the family Dicaeidae, expressed by the evolutionary sequence *Melanocharis*, *Rhamphocharis*, *Prionochilus*, *Dicaeum* and *Oreocharis*, *Paramythia*, *Pardalotus*, with *Melanocharis* the least and

Pardalotus the most highly-evolved. It is interesting to note that nests built by members of the first group are often of greater structural complexity than those belonging to the second, *Melanocharis* and *Paramythia* respectively serving as good illustrations.

Acknowledgement

My grateful thanks are due to members of the Cryptogamic Herbarium staff at the B.M. (N.H.) for kindly identifying the materials used in the construction of the two nests described.

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Footnote

A. L. Rand, (1961 The tongue and nest of certain Flowerpeckers. *Fieldiana:* Zoology, Vol. 39, No. 53, pp. 581–587) describes the nest of *Melanocharis versteri*. From the description and photograph it appears to be very similar to the nests described above.

Unfortunately, Rand's paper was not seen until the present note was in press.–S.A.P.

The Golden-backed Woodpecker, *Chrysocolaptes lucidus* (Scopoli) in the Kangean Archipelago

by A. HOOGERWERF

Received 26th January, 1962

Both specimens of this woodpecker shot by me on the Kangean Islands are females of which only one is adult. The Bogor collection contains only three males and one juvenile female from Java, so that as far as this material is concerned, the adult female from Kangean could not be compared with relevant material from Java, but after my return to Holland I compared the Kangean birds with a good series of the subspecies *chersonesus* and *strictus* from Java at present in the Museum for Natural History in Leyden.

Attention was concentrated on this latter race because it is *strictus* of which the females have a yellowish crown as in birds from the Kangean Archipelago.

Hartert[1] found that the only female from Kangean studied by him did not differ in plumage from the females from Java, but he measured a somewhat smaller bill: this is also the case in my material.

Vorderman[2] obtained a single male when he visited Kangean in 1892, which, he thought, differed from Javan birds on account of the more pinkish under parts. This bird is now in my hands but I cannot discover such a tint, but together with my recently collected female this male differs in other respects from Javan specimens. The feathers of the under surface, especially those on throat, foreneck and chest have much narrower dark edges than is the case in birds from Java, causing the light centre of the feathers to be larger, which gives the under parts quite a different appearance. Moreover the narrow dark streaks on the throat and chin, in nearly all Javan specimens available, are less pronounced or absent in skins from the Kangean Archipelago. The black streak on the sides of the head and the neck is less distinct too; the crown of Vorderman's male seems not so dark red as in all Java skins studied by me and also old. There is a rather striking difference in the tint of the yellow on the crown of the females, for this colour is more strongly washed with cinnamon than in specimens from Java.

The adult female collected by me on Kangean had a small, but well granular ovarium.

From the particulars given above it is evident that the Kangean population of this woodpecker is separable from the subspecies known from Java, which also may average a trifle larger in the bill. Some birds from East Java are in plumage somewhat intermediate between representatives of *strictus* from West Java and the Kangean population but they seem closer to the latter race.

For birds living in the Kangean Archipelago I propose the name:

Chrysocolaptes lucidus kangeanensis subsp. nov.

Types: ♂ Mus. Zoöl. Bogor, No. 2500, May 1892, Ardjasa, Kangean Archipelago (Java Sea); leg. A. G. Vorderman.

♀ Mus. Zoöl. Bogor, No. 23. 181, 17th September 1954, Paliath Island, Kangean Archipelago; leg. A. Hoogerwerf.

♂♀ In size not much differing from the subspecies *strictus*, but the bill and wing may average a trifle shorter in the new race. The general tone of the plumage on the under parts is lighter owing to the narrower edges on the feathers and the somewhat lighter colour, especially upon the feathering of the throat, foreneck and chest. The dark streaks on the chin, throat and foreneck are less striking or absent in birds of the new race. The broad, nearly black band on the sides of the head and neck is less pronounced in *kangeanensis*. The red on the crown of the male is lighter in specimens of the new subspecies and the yellow of the occiput of the females is more cinnamon coloured, showing a very few or no black spots at all as in *strictus*.

The three birds from Kangean collected by Vorderman and myself could be compared with about 15 belonging to *strictus*, present in Bogor and Leyden.

Measurements: (in mm.)

♂♂ Wing; *strictus* (Java): 142, 144, 144, 145, 146, 149, 149, 150; *kangeanensis:* 139;

Tail; *strictus* (Java): 80, 82, 83, 84, 85, 86, 88, 90; *kangeanensis:* 84;

Culmen; *strictus* (Java): 38, 39, 39.5, 41, 41.5, 41.5, 44.5; *kangeanensis:* 36.50.

Max., min. and average measurements:

	strictus	*kangeanensis*
Wing:	142–150	139
	146.13	
Tail:	80–90	84
	84.75	
Culmen:	38–44.50	36.50
	40.71	

♀♀ Wing; *strictus* (Java): 141, 142, 142, 145, 145, 146; *kangeanensis:* 142;

Tail; *strictus* (Java): 79, 84, 84, 85, 85, 86; *kangeanensis:* 86;

Culmen; *strictus* (Java): 36.50, 37, 39, 39, 39.50; *kangeanensis:* 36.10.

Max., min. and average measurements:

	strictus:	*kangeanensis:*
Wing:	141–146	142
	143.50	
Tail:	79–86	86
	83.83	
Culmen:	36.5–39.5	36.10
	38.20	

References:

[1] Hartert, Ernst. The Birds of Kangean Islands, *Nov. Zoöl.*, 9, 1902, p. 434/5.

[2] Vorderman, A. G. Bijdrage tot de kennis der vogels van den Kangean-Archipel, *Natuurk. Tijdschrift Ned. Indië*, 52, 1893, p. 185/6.

On the geographical variation of the Wattle-eye Flycatcher *Platysteira peltata* (Sundevall)

by WALTER J. LAWSON

Received 15th January, 1963

This attractive flycatcher ranges from Uganda, Kenya Colony and Tanganyika, west to the southern Congo, Angola and Northern Rhodesia, and south to Nyasaland, Moçambique, eastern Southern Rhodesia, Zululand and Natal.

The number of geographic races recognised within the species varies according to the authority. Sclater (1930) admits three: *P. p. peltata* (Sundevall), 1850: Umlalazi River, Zululand; *P. p. jacksoni* Sharpe, 1891: Sotik, Kenya and *P. p. mentalis* (Bocage), 1878: Caconda, Angola, whereas Mackworth-Praed & Grant (1955), and Benson & White (1957) admit only *P. p. peltata* and *P. p. mentalis*, placing *P. p. jacksoni* as a synonym of *P. p. mentalis*.

Chapin (1953) admits as valid races *P. p. peltata*, *P. p. mentalis* and *P. p. brevipennis* Grote, 1928: Magogoni, on the Rufu River, (inland from Dar-es-Salaam), Tanganyika, and regards *P. p. jacksoni* as a synonym of *P. p. mentalis*. Sclater (1930) places *P. cryptoleuca* Oberholser, 1905: Useri River, near Kilimanjaro, and *P. p. brevipennis* as synonyms of *P. p. peltata*.

As a result of a recent reassessment of the geographical variation exhibited in *Platysteira peltata*, conducted at the Durban Museum, it became apparent that at least three races must be recognised in our formal grouping of the populations into subspecific taxa.

From Natal, Zululand, north through coastal Moçambique as far north as the lower Zambesi River valley and into the lowlands of southern Nyasaland; also in the lowlands of eastern Southern Rhodesia there occurs *P. p. peltata*. This is a small-sized race which has the black head, wings, tail and breast-band (in the male), or throat and upper breast (in the female) washed with metallic green. The mantle is dark grey, with a wash of non-metallic green.

A further race, the name of which is discussed below, ranges through the eastern Southern Rhodesia highlands, north of *P. p. peltata*, inland Moçambique (above 200 metres), Nyasaland, northern Moçambique, north of the Zambesi River valley through eastern Tanganyika to eastern (coastal) Kenya Colony and southern Somalia; also in the south in the upper Zambesi River valley and eastern Northern Rhodesia. It differs from the nominate race in having the mantle black, with a strong glossy metallic green wash. This diagnostic character is very well marked in the males, but less so in the females.

The third race is *P. p. mentalis*, which ranges from Angola through the southern Congo, Northern Rhodesia west of the Muchinga Range, southern, western and central Tanganyika in the highlands, west of Mt. Kilimanjaro to the Kenya highlands and Uganda. It differs from the other two races in having a metallic blue gloss to the feathers, not green, and is larger in size.

On the question of a name for the populations of eastern Southern Rhodesia, inland regions of Moçambique, Nyasaland, eastern Northern Rhodesia, eastern Tanganyika and eastern Kenya and southern Somalia the name *Platystira cryptoleuca* Oberholser, Useri River, near Kilimanjaro, Tanganyika is available, *P. p. brevipennis* Grote being a synonym. *P. p. jacksoni* Sharpe falls within the established range of *P. p. mentalis*, with which it is placed as a synonym following Chapin (1953).

Arising from this research it is considered that *Platysteira peltata* can be divided into three racial taxa, the nomenclature, characters and ranges of which are detailed hereunder:

Platysteira peltata peltata (Sundevall)

Platystira peltata Sundevall, *Oefv. K. Sv. Vet. Akad. Forhandl.*, Stockholm, vol. 7, 1850, p. 105: "Caffraria inferiore" = Natal.

Type: from Umlalazi River, Zululand.

Black head, wings, tail and breast band (in male), or throat and upper chest (in female), washed with metallic green. Mantle dark grey, with a wash of non-metallic green. Small sized.

Measurements: 10 ♂♂, wing 64.0–68.5 (65.9), tail 51.5–56.5 (53.5), culmen 16.5–18.0 (17.5); 10 ♀♀, wing 62.0–68.0 (65.0), tail 49.0–55.0 (53.0), culmen 15.0–17.0 (16.5) mm.

Material: 35 (Moçambique 11, south-eastern Southern Rhodesia 18, Nyasaland 6).

Range: Natal below 1,500 feet from just south of Durban, to the coastal districts of Zululand, thence through the lowlands of Moçambique as far north as the lower Zambesi River valley and in the lowlands of southern Nyasaland and south-eastern Southern Rhodesia.

Platysteira peltata cryptoleuca (Oberholser)

Platystira cryptoleuca Oberholser, *Proc. U.S. Nat. Mus.*, vol. 29, 1905, p. 913: Useri River, near Kilimanjaro, Tanganyika.

Differs from *P. p. peltata* in having the mantle darker and blacker, strongly overlaid with glossy metallic green. Similar in size to the nominate race.

Measurements: 10 ♂♂, wing 64.0–68.0 (66.2), tail 52.5–56.5 (54.1), culmen 17.0–18.0 (17.5); 10 ♀♀, wing 64.0–67.0 (65.5), tail 52.0–55.5 (53.2), culmen 16.5–17.5 (17.3) mm.

Material: 36 (eastern Southern Rhodesia 12, Moçambique 7, Nyasaland 2, Northern Rhodesia 1, Tanganyika 12, Kenya Colony 2).

Range: The highlands of eastern Southern Rhodesia, north through the inland regions of southern Moçambique above *c.* 200 metres, to Nyasaland (except southern lowlands), west along the Zambesi River valley as far as Chirundu, and extending to eastern Northern Rhodesia, eastern Tanganyika, eastern Kenya (east of the Rift Valley) and southern Somalia.

Remarks: P. p. brevipennis Grote, *Anz. Orn. Ges. Bay.*, vol. 1, No. 12, 1928, p. 195: Magogoni, Rufu River, Tanganyika, is a synonym.

Platysteira peltata mentalis (Bocage)

Platystira mentalis Bocage, *Jorn. Lisboa*, 6, 1878, p. 256: Caconda, Angola.

Differs from *P. p. peltata* and *P. p. cryptoleuca* in having a metallic blue, not green, gloss to the feathers. Similar to *P. p. cryptoleuca* in having the mantle dark, not grey as in the nominate race, but differs as stated above. Larger than the other races.

Measurements: 10 ♂♂, wing 70.0–71.5 (70.6), tail 54.0–58.0 (55.7), culmen 16.5–18.5 (17.5); 10 ♀♀, wing 68.0–71.5 (69.9), tail 54.0–59.5 (55.5), culmen 16.5–19.0 (17.2) mm.

Material: 57 (Northern Rhodesia 52, Kenya Colony 5).

Range: From Angola through the southern Congo and Northern Rhodesia west of the Muchinga Range, to southern, western and central Tanganyika in the highlands west of Mt. Kilimanjaro, the Kenya highlands and Uganda.

Remarks: P. p. jacksoni Sharpe, *Ibis*, 1891, *p.* 445: Sotik, western Kenya is a synonym.

For the loan of additional material I am indebted to the Directors of the following Museums; South African Museum, Cape Town (through Dr. J. M. Winterbottom), National Museum of Southern Rhodesia, Bulawayo (through Mr. M. P. Stuart Irwin) and the Coryndon Memorial Museum, Nairobi (through Mr. J. G. Williams).

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Benson, C. W. and White, C. M. N. (1957). *Check List of the Birds of Northern Rhodesia.* Lusaka.
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Mackworth-Praed, C. W. and Grant, C. H. B. (1955). *Birds of Eastern and North Eastern Africa*, vol. 2. London.
Sclater, W. L. (1930). *Systema Avium Aethiopicarum*. London.

2 SEP 1963
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CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

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DINNERS AND MEETINGS FOR 1963

17th September, 15th October, 19th November and 17th December.

(The October or November meeting will be held jointly with the B.O.U.)

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BULLETIN
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The six hundred and ninth meeting of the Club was held at the Rembrandt Hotel, London, on the 17th September, 1963.

Chairman: Major-General C. B. Wainwright

Members present, 22; Guests 6; Honorary Associates (Overseas) 2; Members of the B.O.U. 4. Total 34.

Mr. M. D. England addressed the meeting on a visit that he and others made to an undisclosed part of Portugal.

His talk was illustrated with coloured photographs, including some of the Black-winged Kite (*Elanus caeruleus*), a species that the party particularly hoped, but scarcely expected to find.

An aberrant *Pycnonotus* from Johannesburg, South Africa

by Miles B. Markus

Received 2nd May, 1963

On 24th July 1962 an abnormal adult male bulbul was caught at Bryanston, Johannesburg. According to plumage it was an example of *Pycnonotus barbatus layardi* Gurney (*Pycnonotus capensis layardi* of some authors) which inhabits the locality, but exhibited an irregularity of the eye-wattles. The normal diagnostic eye-wattle colour of *P. b. layardi* is black, but these were lemon-yellow, resembling those of two birds which were collected north-east of Potchefstroom in the Western Transvaal (Markus[1]); their eye-wattles were a light brownish-khaki, becoming yellowish towards the inside, those of one bird being slightly darker than those of the other. Attention was recently drawn to the Johannesburg specimen elsewhere (Markus[2]).

This bird was in non-breeding condition with testes *circa* 1.25 mm. in diameter, a wing measurement of 103.5 mm., a tarsus of 19.5 mm. and the culmen 22 mm. in length, taken from the forehead. Iris brown; the irides of the Western Transvaal bulbuls referred to in the previous paragraph were reddish-brown. In view of the fact that Johannesburg lies within and not on the periphery of the range of *P. b. layardi*, the specimen under discussion would not appear to be an intergrade, as such, between *P. b. layardi* and the very closely allied red eye-wattled *Pycnonotus nigricans* (Vieillot) and is therefore of particular interest. *P. nigricans* replaces *P. b. layardi* approximately 80 miles to the north-west and is also considered conspecific with white eye-wattled *Pycnonotus capensis* (Linnaeus) by some specialists. There is nothing to indicate that the abnormal specimen was at any time a caged bird, nor does there appear to be any reason to suspect that it may have wandered from another area as *P. b. layardi* in this region is, in my experience, a sedentary form. This occurrence of a yellow instead of the normal black eye-wattle in *P. barbatus* would seem to be of evolutionary significance and the possibility that it is either indicative of a mutation or that it represents an ancestral condition and is an atavism due to gene interaction, should be considered. Other pycnonotids exhibiting the same type of anomaly have apparently been trapped in the same geographical area on previous occasions.

The bulbul was captured during the course of bird-ringing activities by Garth, Robin and Guy Johnson. Mr. R. A. Reed submitted it to Mr. O. P. M. Prozesky of the Transvaal Museum, Pretoria whom I wish to thank for passing it to me for examination.

References:

[1]Markus, M. B. (in press). Bulbuls from the Zone of Contact between *Pycnonotus barbatus layardi* Gurney, 1879 and *Pycnonotus nigricans* (Vieillot) in the Transvaal. *Ostrich.*

[2]Markus, M. B. (in press). The Birds of the Pretoria District. *Biologica.*

The Ten-year Scientific Index

The scientific index of the *Bulletin* covering the period 1950 - 1959 inclusive has now been published at the price of ten shillings.

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A new race of sunbird from West Africa

by William Serle

Received 20th February, 1963

In a paper (*Ibis* 92 [1950] : 627) I mentioned an adult male *Chalcomitra rubescens* (Vieillot) from Bamenda which differed from the other examples of a series of adult males of this species collected in British Cameroons in that it lacked metallic colouring on the throat and breast.

At Mamfe on 10th March 1953, I collected a similar male, one of two adult birds which seemed to be a pair.

It appears that there exists in the north-western corner of the range of the species a well-marked race for which I propose the name

Chalcomitra rubescens crossensis, subsp. nov.

Description:— Male similar to male *Chalcomitra rubescens rubescens* (Vieillot), but lacking metallic colouring on the throat and breast, those parts being dark brown concolorous with the rest of the underparts. The female, to judge from the single very worn specimen obtained, does not differ from the female *C. r. rubescens.*

Distribution:— The lowland forest in the vicinity of Mamfe on the Cross River, and the wooded savanna country to the west of Bamenda, both of which are localities in former British Cameroons and now in the Federal Republic of Cameroun.

Type:— In the British Museum. Adult male, Mamfe, 5° 45′ N, 9° 20′ E., altitude 400 feet, Federal Republic of Cameroun, 10th March 1953. Collected by Dr. William Serle. Collector's No. N.1614. Brit. Mus. Reg. No. 1963. 12. 1.

Measurements of type:— Wing 63; culmen 19; tail 38; tarsus 16 mm.

Other measurements and soft parts:— An adult male collected on 26th May 1948, to the west of Bamenda, 5° 55′ N., 10° 10′ E., at 4,500 feet. Wing 66; culmen 20; tail 43; tarsus 17 mm. *Soft parts:*— Iris brown; bill and feet black.

Remarks:— The central mass of the Bamenda highlands appears to form the eastern boundary of the range of the new race, for an adult male in typical *C. r. rubescens* plumage was collected at Bamale, 5° 58′ N., 10° 25′ E., 3,600 feet, only twenty miles in a direct line from Bamenda, but on the eastern side of the watershed near the headwaters of the Nun River. Another specimen collected on the northern foothills of the Bamenda highlands near Fungom, 6° 32′ N., 10° 12′ E., 2,500 feet, cannot be assigned to its race for it is a female. The southern and western limits of the new race are not known. A long series of males collected in the vicinity of Kumba, 4° 40′ N., 9° 25′ E., are all typical *C. r. rubescens.*

The Cardinal Quelea in Nyasaland

by D. N. Mansfield

Received 15th March, 1963

On 22nd January, 1963 I found three nests of the Cardinal Quelea *Quelea cardinalis* (Hartlaub), on the outskirts of the town of Lilongwe, Nyasaland. The nests, each of which contained two eggs, were within a few feet of each other and about five feet above the ground, in tall grass among trees in abandoned cultivation. Cape Bishops *Euplectes capensis* (Linnaeus) and Black-winged Red Bishops *E. hordeaceus* (Linnaeus) were also present.

Two red-headed (breeding dress) male queleas were seen. One of them was collected; also a female, a clutch of eggs and a nest. These have been examined by C. W. Benson, who compared the male and female with four males in breeding dress and one female from the Luangwa Valley, Northern Rhodesia, and two males in breeding dress and one female from the Rukwa Valley, south-western Tanganyika, loaned by M. P. Stuart Irwin, from the National Museum, Bulawayo. No difference in colour was noted, except that the male from Lilongwe differs slightly from the other males in having the red on the head a trifle brighter, extending rather further onto the chest, and the belly more markedly yellowish.

Wing measurements in mm. are as follows:— males, Rukwa, 58, 60; Luangwa, 58, 59, 60, 60; Lilongwe, 61 : females, Rukwa, 58; Luangwa, 58; Lilongwe, 59.

The eggs, which were fresh, and measure approximately 17 x 12, 17 x 12.5 mm., are very similar in size and colour to the description of two in a clutch of three from the Luangwa Valley (Benson & Pitman, 1956). The nest, like that described in the same reference, is an elliptical ball, but much larger, comparable dimensions in mm. being:— height 150; width 100; width of entrance 30; bottom of entrance 80 from bottom of nest and top 40 from top of nest. Unlike the Luangwa nest, it is not suspended at each side to a bush, but to a grass-stem, probably of a glabrous form of *Panicum maximum.* It is made mostly of the fragments of the panicles of this same species, a few seeds still attached making this identification certain. These grass identifications are by A. Angus, of the Northern Rhodesia Agricultural Department.

Fuggles-Couchman & Elliott (1946) found this quelea nesting in northern Tanganyika, apparently in large colonies, and it was evidently very common. There is no real evidence that this is the case anywhere in the Luangwa Valley or at Lilongwe. J. M. Feely has told Benson that in the Luangwa (Lundazi District) he has seen some ten nests scattered through an area of one acre, together with nests of bishops *Euplectes* spp., in *Pennisetum* and *Phragmites* reeds, on a sand-bank on the edge of a river. This certainly does not fall into the category of a large colony, and the nest recorded by Benson & Pitman (1956) was solitary. Stoehr & Sclater (1906) record the Cardinal Quelea as "moderately common" along the lower Luangwa. But Benson tells me that in the course of 60 miles of travelling on foot through the valley (Fort Jameson District) in February, 1953 he did not see it on more than six occasions (solitary red-headed males distinguished), while E. L. Button has told him that it is also uncommon further north, in the Lundazi District. In spite of fairly intensive work in Nyasaland in the past, mine is the first record of its occurrence in that territory. It appears to be more common in the Rukwa Valley, Vesey-FitzGerald & Beesley (1960) giving it as "frequent", the Red-billed Quelea not merely as "abundant" but "very abundant".

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Notes on *Ducula aenea* (Linn.), particularly the population of the Kangean Archipelago, and *Ducula problematica* Rensch from Sumba

by A. Hoogerwerf

Received 16th July, 1962

Before studying material of these pigeons it seems worth while to pay some attention to Junge's[1] experience when investigating the validity of Büttikofer's *Carpophaga vandepolli.* His paper shows how careful we should be when studying the colour-differences of the greyish feathering because those parts seem to become more vinaceous in skins of birds with much fat. I believe this to be correct and there is a second cause of discolouring of the plumage, *viz.* the use of petrol to get rid of fat, as I could prove in the Bogor Museum's workshop. Instead of cleaning the skins with hot sawdust, they were immersed in petrol, often for many hours, sometimes for a whole night. Owing to this method, birds from the same locality became very different, though—as could be proved after some experiments—not all *Ducula* skins showed the same striking differences. Probably the fat extracted from the skin by the petrol is partly absorbed by the feathers, discolouring the original tones, startling the taxonomist and leading to false conclusions.

Thus it is proved once more that not only is it necessary to prevent chemicals coming into contact with the plumage immediately after the birds have been killed but that one should keep a watchful eye on the way in which the material is handled later. Skins preserved with alcohol, formalin, petrol, etc. should be considered with much criticism. As only in very rare cases it is known whether they were preserved with these liquids or not, it seems necessary to take *always* into account the important alterations in the plumage caused by these materials.

With a view to this I concentrated my attention on fresh skins preserved under my personal supervision and without the use of liquids when studying the material discussed below. Moreover the state of development of the gonads was taken into account, though in the present species this seems not to be of much importance regarding colour differences in the plumage.

The variation in the colour of the plumage in old skins is extremely large, except perhaps in the straw-coloured or rusty tinge on the neck of the subspecies *paulina*, *sulana* and *pallidinucha*, which I discussed earlier[2].

Comparison of Kangean and Bawean birds with those from the neighbourhood of Strait Sunda shows that those from the first mentioned islands are a trifle more vinaceous on the under surface. When picking out from a series of twenty birds the ten with the most vinaceous tint on the under parts, there are three skins from Bawean, three from Kangean, two from Udjung Kulon (West Java), one from Legundi and one from Sebuku Island (Sunda Strait). Separating nine skins with the most vinaceous tint on the occiput and the sides of the head and with the darkest vinaceous nuchal collar, we found four Bawean, four Kangean and one Legundi skins. This means all Kangean and Bawean birds, because the two Kangean skins not separated were of juvenile or badly damaged specimens. From all the 15 birds originating from Strait Sunda and surroundings there is only one approaching our Kangean and Bawean material on this point, though among the Strait Sunda specimens we found the largest number of fat birds, sometimes causing a post-mortem discolouring of the plumage in spite of all measures taken by me to prevent it.

Therefore I think it possible that the distinct dirty vinaceous nuchal collar, together with the extensive clear vinaceous tint on the occiput and the sides of the head, which show all Kangean and Bawean representatives of the species, may prove to be of subspecific importance.

Owing to these characters Kangean and Bawean birds seem to be somewhat intermediate between *pallidinucha* of Muna and Buton (South Celebes) and representatives of the subspecies *polia*. There is also a rather important difference in the length of the tail, for the populations of *Ducula aenea* from Kangean and Bawean have a longer tail than all the other birds of the same species studied by me and—as is evident from the figures given below—they average much less in weight.

Among all the birds of *Ducula aenea* before me there is only one skin from North Borneo approaching those of Kangean and Bawean in the colouring of the head and nuchal area, but this bird was collected as far back as 1912 and nothing is known about the way of its preservation. A second Bornean bird, collected 20 years ago, however, shows the clearest pileum, neck and upper mantle of nearly all specimens examined. Some birds obtained from the Smaller Sunda Islands (I could only examine old material from these islands and four fresh skins, collected by me on Komodo and Rintja, near Flores) differ on the same points from those from Kangean and Bawean as do the others, but skins from Komodo and Rintja show much darker under tail-coverts than Kangean birds.

Above I followed Stresemann[3] in considering the material coming from Java, Strait Sunda, Borneo and Flores as belonging to the subspecies *polia*.

The specimens of this pigeon recently obtained by me on Komodo and Rintja show only two characters of those indicated by Mayr[4], *viz.* the little white on the frontal area and the lack of this colour around the eyes. Two old Flores skins have also little or no white on the feathers of the forehead and round the eyes and they average in having more vinaceous on head and nape, but the other characters cannot be discovered by me. This is also the case with the colour differences on the under tail-coverts and the difference in tint between the chest and the belly.

The particulars published by Mayr after studying so much material from the Smaller Sunda Islands seem to strengthen the existence of the subspecies *problematica*, because our four Komodo-Rintja skins which I suppose belong to this race, are so different in various respects from Mayr's description that it seems quite impossible to unite them with *polia*, which should inhabit the Smaller Sunda Islands, if Stresemann's view is right. This Komodo-Rintja material differs from all other skins before us in having the under tail-coverts darker maroon; also when comparing them with two skins obtained on West Flores and one from Lombok, which do not differ in this respect from other *polia*. They have also very uniform, rather dirty greyish under parts. On account of this character they resemble Rensch's[5] *Ducula problematica* from Sumba. There is still another character which reminds one of *problematica*, for there is also less contrast between the greyish nuchal region and the metallic mantle than is the case in birds belonging to *polia*. The other characters, indicated by Rensch—differences in the feathering on the forehead and in the colour of the bill, are not present in our small series from Komodo-Rintja, nor do these four birds differ in size from *polia*.

Though our Komodo-Rintja birds were preserved in formalin* and the series is small, I think it important enough to discuss these birds here and to point to the similarity of Sumba's *problematica*, which must puzzle us—as it puzzled Rensch—when we know that this island is also inhabited by *polia*. Maybe Rensch studied a bird which came from Komodo or Rintja, not fully 100 km. north of Sumba and that—in reality—these small islands ought to be considered as parts of the *terra typica* of *problematica*. Afterwards I compared the type of *problematica* and could establish a striking resemblance between that skin and all four Komodo-Rintja birds.

These pigeons are extremely good fliers which certainly are able to cover a distance of 100 km. or more within a rather short time, so that the presence on Sumba of birds originating from Komodo or Rintja need not be rejected.

Because so little is known about the weight of freshly shot specimens of these large pigeons and we could establish rather important differences between birds from Kangean and Bawean and those coming from the other localities we visited, it may be of some use to add particulars.

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* Some "experimental" skins from Strait Sunda preserved in formalin did not change in the tint of the under tail-coverts so that the dark colour of those parts in Komodo-Rintja birds seems not to be caused by that.

From the freshly collected material it became evident that *Ducula aenea* obtained within the areas under discussion in this paper varied in weight from 410 (♀) to 600 (♂) grams: that birds in weight less than 500 gr. may be called thin (little or no fat), but heavy birds may not always be called fat, because even meagre birds may seem heavy when they have the crop and stomach full of fruits or remains thereof. Though the number of females taken by me is rather small (eight out of 25 specimens) it seems justified to consider females as being lighter in weight than males (425–550 against 410–600 gr.). Though birds with well developed gonads belonged to the lightest ones, our heaviest male showed gonads of 10 mm. and 3 ♂ with very small testes reached a weight of no more than 520, 521 and 535 gr. Kangean birds proved to average lightest in weight of all the material collected by me, for the males varied from 410 to 475 gr. only and the female weighed 460 gr.; both Bawean males weighed 520 and 535 and the only female 545 gr. The stomachs and crops of these Bawean pigeons were empty, but the Kangean birds had their stomachs partly or entirely filled with fruit remains, thus increasing their normal weight.

The weights of *Ducula aenea* obtained in the areas around the Strait of Sunda varied from 425–550 (♀) and 500–600 (♂) gr.

From these data it is evident that Kangean birds are much lighter in weight than all other *Ducula aenea*, recently collected by me in the areas around and on Java, even when we take into consideration that these birds had large gonads which often (but certainly not always) goes with having little or no fat.

Summarizing I would point out that representatives of *Ducula aenea* from the Kangean Archipelago not only differ from those known as *polia* because of being lighter in weight but they also show a longer tail and a more slender body, more resembling *Ducula rosacea*.

Moreover, it is evident from the particulars given above that occiput, sides of the head and nuchal area are more vinaceous than in *polia;* on the lower neck is a large zone of dirty vinaceous forming a nuchal collar somewhat resembling *paulina*, *sulana* and *pallidinucha*, in which, however, that collar is much more pronounced. Upper parts and wings are more bronzy tinged than in all other specimens studied by me.

On account of the under parts averaging a trifle more vinaceous, most conspicuous on the foreneck and throat, and owing to the light russet vinaceous on the sides of the head and on the occiput, Kangean birds show again much resemblance to *Ducula rosacea*. But the colour on the wings and upper surface is typical of *aenea* and that is also the case with size and structure of the bill and feathering of the tarsi which are those of *aenea*, certainly not of *rosacea*.

Those Kangean birds do differ at a glance from Mayr's[4] description of his material from the Smaller Sunda Islands (which must be seen to belong to *polia*) by the much lighter chin and throat, the whitish forehead and area around the eyes, the less clear under tail-coverts and the russet nuchal collar.

The birds from Bawean Island seen by me are somewhat heavier and less slender than those from Kangean, but they give the impression of being closer to these birds than to *polia*.

Because I could not study enough fresh material belonging to this last subspecies from divergent parts of its range, especially from the Smaller Sunda Islands, I do not think it justified to describe Kangean's population of this pigeon as new, though there seems enough reason to do so.

On the islands Komodo and Rintja, situated between Flores and Sumbawa, we collected four *Ducula aenea* which seem to differ so importantly from the description Mayr gives for the population of this pigeon, inhabiting the Smaller Sunda Islands and from the many skins I could study, that it seems impossible to unite them with *polia.* They resemble Rensch's *Ducula problematica* from Sumba which could be confirmed after comparing our birds with his type specimen, though *problematica* is not recognized by Peters nor in recent literature.

Measurements: (in mm.)

♂♂ Wing; *polia:* 222, 224, 227, 232, 232, 234, 235, 236, 236, 236, 237, 244, 247, 247; *polia* (?), Kangean Islands: 227, 236, 237, 246; *polia* (?), Bawean Island: 237, 243; *problematica* (?), Komodo-Rintja: 245 mm.

Tail; *polia:* 137, 138, 140, 140, 142, 142, 145, 145, 145, 145, 146, 146, 146, 148; *polia* (?), Kangean Islands: 152, 152, 156, 161; *polia* (?), Bawean Island: 146, 160; *problematica* (?), Komodo-Rintja: 156 mm.

Culmen; *polia:* 20, 21.3, 21.5, 21.8, 22, 22, 22, 23.3, 23.9, 24.5, 25, 25.5, 27, 27.1; *polia* (?), Kangean Islands: 21.1, 23, 23.2, 25.6; *polia* (?), Bawean Island: 21.5, 25.5; *problematica* (?), Komodo-Rintja: 23.8 mm.

Max., min. and average measurements:

	polia Java, Sumatra, Borneo, Flores, Nusa Penida and Strait Sunda	*polia* (?) Kangean Islands	*polia* (?) Bawean Island	*problematica* (?) Komodo and Rintja
Wing:	222–247 234·93	227–246 236·50	237, 243 240	245
		227–246 237·67		
Tail:	137–148 143·21	152–161 155·25	146, 160 153	156
		146–161 154·50		
Culmen:	20–27·10 23·34	21·1–25·6 23·23	21·5, 25·5 23·50	23·8
		21·10–25·60 23·32		

♀♀ Wing; *polia:* 228, 229, 230, 234, 235, 240, 240, 246, 246; *polia*?, Kangean Islands: 230; *polia* (?), Bawean Island: 245, 251; *problematica* (?); Komodo-Rintja: 230, 231, 245 mm.

Tail; *polia:* 142, 143, 144, 145, 146, 147, 150, 150, 151; *polia* (?), Kangean Islands: 153; Bawean Island: 155, 160; *problematica* (?), Komodo-Rintja: 135, 144, 155 mm.

Culmen; *polia:* 20.5, 21.5, 22.9, 23, 24, 24, 26, 27, 27.1; *polia* (?), Kangean Islands: 23; *polia* (?), Bawean Island: 21.5, 24; *problematica* (?), Komodo-Rintja: 23.2, 24.2, 29 mm.

Max., min. and average measurements:

	polia Java, Sumatra, Borneo, Flores, N. Penida, Strait Sunda	*polia* (?) Kangean Islands	*polia* (?) Bawean Island	*problematica* (?) Komodo and Rintja
Wing:	228–246 236·44	230	245, 251 248	230–245 235·33
		230–251 242		
Tail:	142–151 146·44	153	155, 160 157·50	135–155 144·67
		153–160 156		
Culmen:	20·5–27·1 24	23	21·5, 24 22·75	23·2–29 25·47
		21·5–24 22·83		

Wing-tail Index:

polia: ♂♂ 60.91; ♀♀ 61.99
polia(?), Kangean Islands: ♂♂ 65.64; ♀♀ 66.52 }
polia(?), Bawean Island: ♂♂ 63.75; ♀♀ 63.31 } ♂♂ 65.01; ♀♀ 64.46

Weight:

♂♂ *polia:* 500, 515, 521, 535, 540, 545, 545, 570, 585, 598, 600 gr.
polia(?), Kangean Islands: 410, 467, 475, 475 gr.
polia(?), Bawean Island: 520, 535 gr.

average:

polia: 550.36 gr.
polia(?), Kangean Islands: 456.75 gr. }
polia(?), Bawean Island: 527.50 gr. } 480.35 gr.

♀♀ *polia:* 425, 495, 510, 550 gr.; average: 495 gr.
polia(?), Kangean Islands: 355, 460 gr.; average: 407.50 gr. }
polia(?), Bawean Island: 545 gr. } 453.33 gr.

References:

[1] Junge, G. C. A. The mysterious *Carpophaga vandepolli* Büttikofer; *Zoölogische Mededelingen*, 18, 1935, pp. 160–161.

[2] Hoogerwerf, A. Notes on *Ducula aenca* from Celebes and surrounding islands; *Zoölogische Mededelingen*, 30, no. 18, pp. 283–288.

[3] Stresemann, Erw. On the birds collected by Pierre Poivre in Canton, Manila, India and Madagascar (1751–1756); *Ibis*, 94, 1952, pp. 499–523.

[4] Mayr, Ernst. The birds of Timor and Sumba; *Bull. Amer. Museum of Nat. History*, 3, 1944–1945, pp. 147–148.

[5] Rensch, Bernh. Uber einige Vogelsammlungen des Buitenzorger Museums von den Kleinen Sunda-Inseln; *Treubia*, 13, 1931, pp. 372–373.

On a new race of *Streptopelia lugens*

by DEREK GOODWIN

Received 9th February, 1963

In the course of revising the pigeon collection in the British Museum (Natural History) I examined four males and three females of *Streptopelia lugens* (Rüppell) from Arabia (Wadi Hijla, Suda, Wadi Hulab and Wadi

Bisha) together with a large series from Africa. I agree with Mackworth-Praed and Grant (1952) in considering *S. lugens funebrea*, described from Nairobi, Kenya, inseparable from the nominate form. Dusky Turtle Doves from Arabia are, however, clearly separable from African specimens.

Streptopelia lugens arabica subsp. nov.

Description: Larger than nominate form. Four males from Arabia have wing lengths of 192 to 195 mm. as against 176 to 186, with an average of 182, for twenty-one African males. Three Arabian females have wing lengths of 188 to 192 mm. The largest wing measurement for an African female is 184 mm.

Type: An adult male in the British Museum (Nat. Hist.), registered No. 1937. 4.17.57, was taken by H. St. J. B. Philby at Shaib Hanjur, Upper Wadi Bisha, south-western Arabia on 2nd June 1936. Presumably the bird was in its breeding area, as the collector noted on the label that it had enlarged testes and that another pair were seen courting nearby.

Measurements: Wing 193 mm., culmen from skull 22 mm., from feathers 19 mm., tarsus 25 mm., tail 122 mm.

Distribution: The highlands of south-western Arabia.

The Arabian specimens are browner and paler in colour than the majority of nominate *lugens* but this may be due in part to wear and bleaching.

Reference:
Mackworth-Praed, C. W. and Grant, C. H. B. (1952). *African Handbook of Birds* Ser. 1, Vol. 1: 490.

Nesting of the Paradise Crow, *Lycocorax pyrrhopterus* (Bonaparte) and the Spangled Drongo, *Dicrurus hottentottus* (Linn.) in the Moluccas

by S. A. Parker

Received 4th February, 1963

Lycocorax pyrrhopterus, of which three races are recognised, is confined to the Moluccas; with *Semioptera wallacii* it is the only bird of paradise endemic to this region. Bernstein, writing in 1864, described it as a bird of thick forest, living in the canopy of moderately high trees, and more often heard than seen. It appeared to exist solely on fruit; its call, a short, monotonous, interrupted 'wuhk' or 'wunk' which his collectors likened to the ringing bark of a dog, could be heard especially in the morning and evening. This represents the sum total of our knowledge concerning the habits of this species.

Schoenwetter (1944) recorded three eggs of this species: one collected in 1862 by Bernstein on Halmahera, (measuring 38.9 x 26.7 mm.); one collected in 1865 by the same collector on Obi, (40 x 28.4 mm.), and a third in the Nehrkorn Collection, of uncertain origin, (41 x 29 mm.). The smallest egg is from Halmahera, and this may be explained by the fact that birds from this area belong to the smallest race, *L. p. pyrrhopterus*. The above eggs are said by Schoenwetter (*loc. cit.*) to resemble in markings those of *Emberiza citrinella* and *Phragamaticola aëdon*. Judging from the eggs described below, these appear to be apt comparisons.

On 24th December 1929 F. Shaw Mayer obtained two nests of *Lycocorax*, each containing one egg, at Patani, on Halmahera. The eggs are now in the British Museum collection. The first nest, according to field notes accompanying the egg, was large and basin-shaped, built of roots and moss, and lined with soft woodchips. It was placed about 23ft. above the ground; the nest site is not mentioned, though presumably it was in a tree. The nest was noted as being saturated with rains. The single fresh egg (B.M. No. 1941. 1.2.98) tallies with Schoenwetter's description; it is of a pinkish-stone ground colour, marked all over in an irregular pattern with sparsely distributed lines of violet-brown and hairstreaks of pale lilac, and measures 37 x 26.35 mm. Faint orange stains may be attributed to the wet woodchips.

The second nest was merely recorded as similar to the first; that the egg it contained was at a later stage of incubation than the first seems to confirm that the species lays only one egg per clutch. The egg (B.M. No. 1941. 1.2.99) is identical in colour and markings to the first, but slightly smaller, measuring 35.2 x 25 mm. It also bears faint orange wood stains. Both eggs are slightly glossy.

There appears to be no record in literature of the nesting of *Dicrurus hottentottus atrocaeruleus* Gray, the race of the Spangled Drongo inhabiting Halmahera and Batjan in the Moluccas. On 11th December 1929, Shaw Mayer collected a nest with two eggs of this subspecies at Patani; one egg is now in the B.M. collection (B.M. No. 1941. 1.5.36). The nest is described in Shaw Mayer's field notes as shallow and cup-like, built of intertwined rootlets and twigs, and lacking a lining. It was approximately 67 ft. above the ground, not an uncommon height for drongo nests. The egg, which measures 29.5 x 21.55 mm., is reminiscent of the eggs of *Tchagra senegala* in colour and pattern; it is distinctly glossy, with a white ground upon which are distributed hairlines, blotches and suffusions of secondary pale greys and lilacs, most in evidence at the larger end, with darker blotches and spots of liver-brown and sepia capping the larger end.

References:

Bernstein, H. A. (1864). Ueber einen neuen Paradiesvögel und einige andere neue Vogel. *Journ. f. Orn.* 72: 401–410.

Schoenwetter, M. (1944). Die eier der Paradiesvögel. *Beitrage Fortpfl. Biol. Vogel.* 20: 1–18.

Further notes on the African Finfoot, *Podica senegalensis* (Vieillot)

by THE LATE LORD WILLIAM PERCY

Received 12th February, 1963

In amplification of Pitman's notes (*Bull. B.O.C.* 82; 9) the results of some eleven years' investigation of the finfoot may be of interest.

Though not easy to study, it is far from being as uncommon as is usually represented. Indeed, in my own experience, it is very widely distributed for I have met with it on every suitable stream in which I have sought it from Southern Rhodesia to Kenya, not, it is true, in any great numbers but more frequent than its stealthy and skulking nature would lead the casual observer to suppose.

The finfoot is by no means extremely shy and is peculiarly slow in detecting a motionless object and will swim past within a few feet of a motionless, even if only moderately well concealed observer. If the bird then springs lightly with wings closed to a tree trunk three feet above the water and stands to preen its streaked and mottled plumage set off by its brilliant orange legs, feet and bill, it presents a striking spectacle.

Though recorded from dams and lakes I have never observed it on either. Its normal and favourite habitat is that of more or less fast running streams from quite small ones to the great rivers such as the Zambesi. It is best observed by selecting a spot (not easily found on overgrown forested African rivers) with as much field of view as possible and simply sitting still. Finfoots hug the immediate vicinity of the river bank and on small streams the first intimation of the bird's presence that is apt to catch the eye is the movement of the white streak on head and neck in the shadow under the opposite bank caused by the exaggerated forward and backward movement of the head with each swimming stroke of its feet. This tell-tale mark and the spots on its back, though conspicuous in shadow and still water, become perfect camouflage as it enters rough or foam flecked water. Should it cross a large river it does so at speed and with obvious distaste of exposure in wide open spaces far from cover.

First impressions are of an apparently perfectly streamlined aquatic diving bird, yet it can hardly be induced to dive except by close chase in a power boat; a strong flyer that is rarely persuaded to take wing and prefers to escape when alarmed by flapping along the surface after the manner of a Steamer Duck (*Tachyeres*); that climbs into low trees in a manner reminiscent of a large lizard aided by its extremely stout and sharp claws and stiff tail feathers, and that is as likely as not to so diverge from the habit of aquatic diving birds as to seek refuge by leaving the water and running up into the bush as fast as any pheasant. This activity on land is one of the bird's most unexpected characteristics. A finfoot surprised on a wide open mudbank displays an unexpected fleetness of foot, the impression of agility only marred by the occasional lifting of one or both wings for a fraction of a second as it runs. It seems to take wing more readily from land or rock than from the water but once airborne the flight is rapid and strong, not unlike that of a merganser. If suddenly startled when perched in a bush it flops to the ground, seemingly without opening its wings, and scuttles off in the undergrowth.

These observations dispel any lingering doubts about the finfoot's relationship to such birds as darters (*Anhinga*) or grebes, for its general morphology and lobed feet more nearly resemble those of a coot (*Fulica*) than a grebe and the circumstantial evidence of its Mallophaga which, on the authority of Theresa Clay (*in litt.*) belong to the rail infesting genera *Pseudomanopon* and *Fulicoffula*, seem to suggest a ralline affinity. In my experience the bird's method of feeding is entirely off or above the surface or within reach of its bill below it, frequently picking insects off overhanging bank vegetation and jumping up to reach them. It probably gets a good deal of its food ashore, for in conditions of low water, mudbanks are covered with its very distinctive tracks. Five stomachs examined contained a very wide assortment of fragments of insects and their larvae, spiders, beetles, crustaceans, numerous opercula of snails and a few fragments of small vertebrates, and once the whole large egg case of a praying mantis. I have never seen the bird dive when feeding or otherwise than when wounded or chased.

It swims with tail flat on the water, the distal half awash and in the rare circumstances when there is no cover at hand will adopt as an alternative method of escape that of "freezing" motionless alongside a rock with nothing but the top of its back showing above water. It will then trust to this device until approached within a yard or two. Though I have never observed it to do this in open water the following note (27.12.52) from Sir John Kennedy shows that it will on occasion do this as if shamming death:— "The river was very low and only some eight yards wide at that point and coming to the top of the bank about five yards away we saw what appeared to be the back of a dead bird floating in the water quite motionless only the back showing, wings closed. After we had watched it for perhaps five or six seconds the bird came to life and scuttered off along the surface into a small reedbank. It was a Finfoot. We beat the patch of reeds but never saw it again." A notable feature is the birds' extreme attachment to territory. Each pair, often many miles from the next, occupies a strictly defined section of river which is sometimes as little as ¼ to ½ mile or even less and attachment to it is illustrated by two instances which in each case when I collected the ♂ of a pair the ♀ remained in exactly the same spot unmated for no less than nine months until observations ceased. Judging from specimens collected, skins examined, and lame finfoot seen, foot injury seems remarkably frequent, perhaps due to the attraction of the brilliant lobed feet to predatory fish. On one occasion a friend living on the banks of the Zambesi reported that while watching a ♀ with two downy young, one of the latter disappeared after of a splash from under water.

The only note I have heard from these usually silent birds is a chattering by a ♀ when chased by a ♂, but in widely separated parts of its range Africans assert that it makes a booming noise, from which they give it the onomatopoeic name 'Mumbooma' on the Upper Zambesi.

Nest history is meagre and close study of it apparently non-existent. I have been unable to obtain information on the part played by the ♂ in incubation, but on the few occasions on which a ♀ with young has been observed the ♂ has not been with them.

The dates of five nests in recent years in Southern Rhodesia show wide variation, September, October, November, December and April. Sites in Southern Rhodesia have varied from ground level two feet above water level amongst rushes on an island to the upper surface of a large horizontal bough overhanging the water and five feet above it, the nest being placed in a space between large upright shoots from the bough, and similar to that of a moorhen (*Gallinula chloropus*). Adult males collected on the Upper Zambesi and Chobe rivers in January and February and one from the highlands of Kenya in April, all showing enormously swollen testes, were certainly breeding. The dates suggest that breeding is influenced by the period of the peak of the flood in the particular river concerned rather than by the season of the year; indeed it if were otherwise than at or after the peak of the flood, nests in the situations referred to would be washed out by the rising water. There is considerable disparity in the size of adults and still more between the sexes, so much so that reports of a "finfoot with one young one" and of "three young finfoot" have on occasion proved on inspection to be a pair, and a female with two full fledged young, respectively. The clutch has been two eggs in every case but one, when three eggs were reported (but not seen by me).

The climbing ability of *Podica* has already been mentioned but there is one remarkable feature which seems not to have been published. In the first two specimens handled I failed to observe it myself though present, but it was brought so prominently to notice in the next that it could not escape observation. A large ♂ had climbed into a patch of papyrus when shot and on picking it from the water and laying it on its back at my feet the first digit on its wings stood out at a sharp angle. Reflex action was still operating and the dull red digits (in this case 18 mm. long) were still twitching independently of the motionless wings. Every specimen which I have handled in the flesh has shown these digits (varying from 12–18 mm.) and furnished with a well developed claw. These digits shrivel and dry up in a skin and are then difficult to find or examine.

The "spur on the carpal joint" is *not* similar to that on such birds as *Merganetta*, Spur-winged goose, etc., etc., but is a claw on the end of a more or less well developed *digit*, and capable of movement apart from the wing.

Subsequent experiences have continually fortified the impression that they are in fact functional and in use by the bird when climbing, as it does with half opened wings. But for some years I concluded that such "impressions" do not merit publication until I received from Colonel R. Meinertzhagen the following entry from his diary in Kenya dated 21.10.16:— "Blaney Percival has taught me a great deal about birds; today he pointed out . . . and the *vestigial claw of the finfoot* which he tells me is used for climbing much as the young hoatzin is known to do." Any disappointment that might have been experienced on finding that my observation was by no means original is more than compensated by the discovery that it is corroborated by so acute an observer as Percival more than 40 years ago.

The bird's pectinated claw on the middle toe is a feature which only Jackson (I. p. 309) appears to have recorded, but in some study specimens it is not immediately apparent and can be overlooked.

Podica and *Merganetta* developing as they have done in somewhat similar habitats in very different parts of the world provide an interesting example of "parallel development". Each has developed so striking a similarity in general morphology and habit that they bear more resemblance to each other than to any typical rail or duck.

The egg of *Podica* is very like those of other ralline birds—some heavily marked corncrake eggs are miniatures of those of *Podica*. A striking case of missed opportunity is the contribution of an informant, whose windows overlook a river much frequented by finfoot, that a study of its habits "would not be rewarding" for he had "never seen it do anything more interesting than to swim calmly between the snouts of two fighting bull hippos!"

Note by CHARLES R. S. PITMAN

Lord William Percy kindly allowed me to see these notes prior to publication. In the course of correspondence he emphasises the superficial similarity in appearance of *Merganetta* and *Podica*, especially the ♀♀, and further invites attention to some remarkable similarities between the two in general habit, type of diet (neither of them mainly fish-eaters as one might expect), and the small clutch size—two usually, sometimes three, in the case of *Podica* and two (to five) for *Merganetta. Merganetta* is certainly the most efficient navigator of 'white' water that he has ever seen, but *Podica* comes a good second, and both are masters of the art of simply disappearing without trace.

Lord William suggests that perhaps predatory fish are responsible for the remarkable frequency of foot injury in the finfoot specimens he has seen, alive and dead. I have examined the forty-seven examples of the African finfoot at the British Museum (Natural History)—twenty-two from East Africa and Southern Africa, one from the eastern Congo (Ituri), twelve from the Cameroons and twelve from other parts of West Africa, and there is little indication of this type of injury. Two birds from the Cameroons and one from Ghana (Ashanti) each have one claw missing; whether this can be attributed to predatory fish is doubtful. Lord William's observations were possibly made mainly in connection with the Zambesi (and other large rivers) where occurs the highly predacious and active tiger fish *Hydrocyon. Merganetta*, like *Podica*, when leaving the water, jumps out. *Vide* Phillips[1] (IV, p. 223) who quotes Whitely (1874)—with specific reference to the Peruvian Torrent Duck, *Merganetta armata leucogenys* (Tschudi)—the stiff feathers in the tail aid climbing (as they do for *Podica*) up large stones as smooth as glass. Further, when referring to the Chilean Torrent Duck, *Merganetta armata armata* Gould, Phillips (p. 214) quotes Robert Crawford (writing in 1884) "The facility with which, when emerging from the river, they scrambled up the smooth-worn surface of the rounded stones was also marvellous. The natives told us they accomplished this by the aid of hooks with which the wings are provided." In view of Lord William's remarks on the use of the spur on the wing of *Podica* this is an extremely interesting observation, which may well be correct. *Merganetta* certainly uses its wings greatly to assist it in climbing (p. 214). Delacour[2] (II, p. 210), records that the long, sharp, carpal spur of *Merganetta* increases in length with age and that it is smaller in the ♀♀.

Delacour (p. 218) mentions that the stiff tail of *Merganetta* is used as a surf board to enable it to stand vertically in the water and Johnson[3] (p. 115) who witnessed the pre-mating display of typical *Merganetta armata* records "as they came close together, practically standing on their tails after the manner of courting grebes". The nest of *Merganetta* is unlike the austere platform of *Podica*, for it (*M. a. colombiana* Des Murs) is described (Phillips, p. 221) as a fluffy mass of down completely hiding and burying the two large eggs, the down plucked from the breast of the ♀.

A nest of *M. a. armata* found by Johnson (p. 115) was in a kingfisher burrow, in the face of a 28 foot vertical escarpment, rising above the river and about six feet from the top. The three slightly incubated eggs were laid on a quantity of down. The previous year, three striped (longitudinally) ducklings, less than a week old, were observed with this same pair of *Merganetta.*

The small, middle claw of *Merganetta* is not pectinated. Whereas, insofar as is yet known, two (sometimes three) eggs seem to be the normal clutch for *M. a. colombiana* and *M. a. leucogenys*, it does not constitute the smallest known clutch of any duck, for the curious Musk Duck, *Biziura lobata* (Shaw) of Australia, with certain characteristics akin to *Merganetta* (and *Podica*), also lays only two or three eggs.

Johnson has been able to carry out 25 years of observation on *Merganetta*, which like *Podica* subsists to a great extent on insect food, principally on the larvae of the stone-fly *Rheophila* (p. 114). In confirmation of similarity of behaviour between *Podica* and *Merganetta*, as claimed by Lord William Percy, Johnson (p. 114) refers to *Merganetta's* ''strong attachment to a particular stretch of river . . . and for the greater part of the year are found only in pairs''. Further, Johnson (p. 115) describes how a *Merganetta* ascended an upwards-slanting crevice on a vertical cliff face, ''by a series of leaps with half-open wings''; and, also (p. 115), how she flopped down on to the water ''with closed wings, landing with a splash flat on her breast'' from a height of more than 15 feet.

A note by L. Trollope, in the *Bokmakierie*, Vol. 8, No. 1, 1956, p. 5, illustrates the remarkable reluctance of the finfoot to dive even when chased by a power launch, ''dodged and turned . . . It swam, skittered and flapped but *never* dived and *never* flew . . . became very exhausted and on occasion lay 'all out' flopped on the water. Eventually it reached the sloping sandy bank and *immediately* took off and flew away strongly.''

Dr. M. Pitt Fennell (*in litt.*) has given me particulars of c/3 taken by the Axaxo river, in Transkei, South Africa. The nest was of driftwood in a biggish shrub over the water. The eggs measure 59 x 40, 58 x 40 and 55 x 39 mm. The two bigger eggs are very similar, moderately glossy, light beige, finely mottled with underlying bluish-grey speckles, on which is superimposed blotchy speckling of grey and brown. The smallest egg differs considerably, the blotchy speckling being far more scanty, and it is less glossy.

References:

[1] Phillips, John C. *A Natural History of the Ducks*, 1926.

[2] Delacour, Jean. *The Waterfowl of the World*, 1956.

[3] Johnson, A. W. Notes on the distribution, reproduction and display of the Andean Torrent Duck, *Merganetta armata. Ibis* 105 (1), 1963.

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CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for ''Description'', ''Distribution'', ''Type'', ''Measurements of Type'', ''Material examined'' and further sub-headings as required.

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CORRESPONDENCE

Other correspondence should be addressed to the Hon. Secretary, Dr. J. G. Harrison, ''Merriewood'', St. Botolph's Road, Sevenoaks, Kent.

DINNERS AND MEETINGS FOR 1963

15th October, 19th November and 17th December.

(The October or November meeting will be held jointly with the B.O.U.)

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The six hundred and tenth meeting of the Club was held jointly with the British Ornithologists' Union at the British Museum (Natural History) on 22nd October, 1963.

The status of *Spizocorys razae* Alexander

by Mrs. B. P. Hall

Received 18th July, 1963

History. In 1898 Boyd Alexander discovered a lark on Raza Island (one of the Cape Verde group) that is only about three square miles in extent. He named it *Spizocorys razae* without giving any reason for referring it to this genus, then only represented by the Pink-billed Lark of South Africa, *Spizocorys conirostris*, a smaller bird with a short finch-like bill and several other differences in colour and structure.

In 1905 the monotypic genus *Razocorys* Bianchi was erected for it and this was generally accepted until Meinertzhagen (1951: 89) submerged both *Razocorys* and *Spizocorys* in *Calandrella*, of which the type species is *C. brachydactila*, the Short-toed Lark.

Structure. It is difficult to see why *razae* has been so generally associated with the *Spizocorys*/*Calandrella* group of larks for in general appearance it seems to lie between the Sky Larks (*Alauda arvensis* and *A. gulgula*) and the Crested Larks (*Galerida cristata* and *G. malabarica*), having the short crest of *Alauda* and the long, rather heavy bill of *Galerida*.

Close examination shows that, in all respects except the bill, it is very close indeed to *Alauda*, especially to *A. gulgula*, which differs from *arvensis* in being smaller, with a longer bill (though not as long as in *razae*) and less pointed wings. The three species have a similar general colour and pattern, including the underwing and tail pattern, a similar wing formula (except for the pointed wing of *arvensis*), a similar (rather distinctive) minute outer primary and emargination of feathers, similar strong legs and long hind claw, similar well-covered nostrils. The bills, while differing in length and strength, are the same basic shape.

Meinertzhagen (1951: 91) regarded the length and strength of the bill as a character adapted for digging, and with this I agree, but while he regarded it as an extreme adaption of the short, finch-like bill of typical *Calandrella*, it seems to be more probably merely an enlargement of the typical *Alauda* bill.

Habits, Nest and Eggs. Alexander (1898: 106) described *razae* as being found in flocks feeding sometimes on grass seed, sometimes among rocks, while Meinertzhagen found that it made good use of its long bill for excavating grubs. Alexander noted "on taking to flight they utter notes very similar to our Skylark when on the wing," and remarked on the males raising their crests. On a subsequent visit he described (1898: 282) the males courtship, "with wings drooping and scraping along the ground, a male would approach and circumvent a female, and then rise above her head and pour out his song as he ascended vertically with a gentle beat of wings, and not in the spiral circles that characterize the impetuous singing flight of our Skylark". The nest he found was a frail structure of grass placed in a small depression in the loose stony soil in a patch of grass or under a boulder. The eggs, three in number, resembled those of the Wood Lark (*Lullula arborea*) in colour and dimensions.

Conclusions. In structural characters *razae* appears to be closest to *Alauda*, though exhibiting some affinities with *Galerida* which suggest that these genera are closely related. The differences between *razae* and the European Sky Lark (smaller size, less pointed wing and longer bill) may all be attributed to adaption for life on a small island. In field habits, nest and eggs, there are many similarities with *Alauda* and the chief difference noted, that of less elaborate song flight, may also be an adaption to conditions on a small island.

I believe therefore that the Raza Island Lark is closely related to the Sky Larks and henceforth should be known as *Alauda razae*.

Acknowledgements. I am grateful to both Derek Goodwin and Colin Harrison for examining these larks with me and discussing their affinities.

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Cisticola galactotes in Southern and Central Africa

by Mrs. B. P. Hall

Received 8th May, 1963

After his tour of the southern Congo, Lynes (1939: 90) described the variation in *Cisticola galactotes* in southern and central Africa as it was then known, and discussed the nomenclatorial problems presented, later (p. 129) adding corrections to his first conclusions. His final views can be summarized as follows:

(a) Birds from Bechuanaland (Ngamiland) and southern Mozambique were best placed with nominate *C. g. galactotes* from Natal, a subspecies known in the type locality to lay plain red eggs.

(b) Birds in fresh breeding dress from Lake Bangweolo were exceptionally bright rufous on the head, and laid plain red eggs. These represent topotypical *luapula*. There were no specimens in worn or non-breeding dress.

(c) A series of birds from Katanga, the Luapula valley and Lake Moero were considerably less rich in breeding dress than those from Bangweolo, and laid spotted eggs. He first judged them to be closest to *C. g. suahelica* from Tanganyika (a rather dull race), but later (p. 129) altered his opinion, and called them *C. g. luapula* in spite of the difference already described in breeding dress or in colour of eggs.

(d) Birds from Lower Zambesi and Shire valleys, also known to lay spotted eggs, were judged close to *suahelica*.

Subsequent collecting, particularly in western Northern Rhodesia and Ngamiland, has complicated rather than clarified the picture, and authors have differed in their treatment of the species. White (1962: 667) in the latest review regards all birds from Katanga southwards through the Rhodesias and Portuguese East Africa as nominate *galactotes*, except for a population in the Balovale area and Barotseland, in western Northern Rhodesia, which he had previously named *schoutedeni* (White, 1954: 106). These birds he found to be rather larger than *C. g. galactotes*, and, in breeding dress, darker above with a darker red-brown crown and heavier streaking on the back; below rather whiter, less buffy. The non-breeding dress unknown.

Through the kindness of R. H. N. Smithers, M. P. Stuart-Irwin, M. A. Traylor and Professor H. Schouteden, I have been able to examine the entire series of *C. galactotes* from the National Museum of Southern Rhodesia, most of the extensive series collected by Traylor in Barotseland and Ngamiland for the Chicago Natural History Museum and critical specimens in the collection at Tervuren. These with the British Museum collection amount to over one hundred birds from the critical areas. Nevertheless there still remain most unfortunate gaps in our knowledge of the various plumages. Since there is some hope that some of these gaps can be filled in the near future I propose to leave the nomenclature indecisive, and will discuss the material by populations rather than subspecies.

1. *Natal and Zululand.* A small series representing nominate *C. galactotes* is distinguished from all others by a longer bill (♂ 17–18, ♀ 16 against ♂♀ 14–16 mm. elsewhere), and possibly a longer tail in winter (see Table). In breeding dress the crown appears rather duller and less red than Ngami and Northern Rhodesian birds that have been ascribed to *galactotes*. These differences and the distance separating Ngamiland from Natal makes me hesitant to regard any of these populations as true *C. g. galactotes* except those from Natal and Zululand.

2. *Southern Portuguese East Africa.* A single male in non-breeding dress from Inhambane has a long bill (17 mm.) similar to *C. g. galactotes* but a shorter wing and tail, and is rather less rich in colour. It may represent an intermediate population. Further material is required.

3. *Sabi-Lundi Junction.* Only two specimens are available from Southern Rhodesia, a male and female in non-breeding dress. They appear paler than *C. g. galactotes* and lack either the long bill or the long tail. Further material is required.

4. *Lower Zambesi valley and central Portuguese East Africa.* A male and female in breeding dress collected recently from near Tambara, and two from Beira (in moult) support Lynes' original view that this population is closest to the greyer-headed *suahelica* but more material is required.

5. *Chobe, Caprivi Strip and Livingstone area.* Birds in both breeding and non-breeding dress are available. These show the slight differences from *C. g. galactotes* already noted. The eggs are unknown.

6. *Ngamiland.* A good series is now available in breeding dress, which matches the Chobe series, though one male from Shorobe, 25 miles north of Maun, has an exceptionally long tail (56 mm.) for the season. A single non-breeding male seems similar to those from the Chobe but more material is required. The eggs are unknown.

7. *Kafue area.* A series in non-breeding dress matches the Chobe birds but further specimens in breeding dress are required. The eggs also are unknown. It seems probable that there is no significant difference between these last three groups (5–7): they may possibly prove to require a new name or may be close enough to Bangweolo birds to be included under *C. g. luapula* (see below).

8. *Balovale area and western Barotseland.* The majority of birds from these areas are in breeding dress but a few non-breeding birds show that in both plumages these populations are duller on the head and darker on the back than Kafue/Chobe/Ngami birds. They average slightly larger. Traylor collected a clutch of eggs in the Kalabo district (see Benson & Pitman 1963: 35)which are spotted, typical of those of *C. g. suahelica.* These populations represent *C. g. schoutedeni.*

9. *Lake Bangweolo.* Since Lynes pointed out that the small series in fresh breeding dress from Bangweolo had exceptionally bright rufous heads (darker than "*galactotes*", brighter than *schoutedeni*) very little further material has been obtained. The only two additional specimens examined are in very worn breeding dress just commencing moult on the head. It is not therefore yet possible to judge the extent of variation in this population, which represents topotypical *luapula*, or to assess its relationship with the Ngami/Chobe/Kafue birds.

10. *Katanga, Lake Moero and Luapula valley.* Little additional material is available from these areas and does not include any specimens in really fresh breeding dress. In both slightly worn breeding dress and in non-breeding dress these birds have duller, less rufous heads than comparable specimens from Ngamiland, Chobe and Kafue (and much duller heads than the fresh Bangweolo birds) and the edges of the mantle feathers are darker, contrasting less heavily with the centres thus giving a less streaked appearance, particularly in breeding dress. In appearance, as Lynes first noted, they are very like *suahelica* and quite unlike typical *luapula*. When he altered his opinion later and called these populations *C. g. luapula* he did not define what differences re-examination revealed between them and *suahelica*, though the fact that he included them with Bangweolo birds implies that he believed that they must have bright rufous heads in fresh breeding dress, improbable as this seems from the series available.

Conclusions

1. On present evidence it is not possible to name subspecifically the populations of *C. galactotes* in (a) Southern Rhodesia and southern Portuguese East Africa, (b) Zambesi valley (c) Ngamiland, the Chobe and Kafue areas, (d) the Luapula valley, Lake Moero and Katanga.

2. A good series of topotypical *luapula* from Lake Bangweolo is urgently required to determine whether either the Ngami/Chobe/Kafue populations, or the Luapula valley/Lake Moero/Katanga populations can be ascribed to *luapula.*

3. Good series taken throughout the year are required from Southern Rhodesia and Portuguese East Africa.

TABLE OF WING AND TAIL LENGTHS (in mm.)

The number of specimens measured shown in brackets. Discrepancy in comparative numbers of wings and tails is due to moult.

Population and Race (numbers as in text)	WING		TAIL			
	♂	♀	♂		♀	
			br.	n.br.	br.	n.br.
C. galactotes						
1. *C. g. galactotes*	62–64 (8)	55–56 (4)	52–55 (4)	65–70 (3)	47–49 (2)	55–58 (2)
2. near *galactotes*	60			54		
3. subsp. ?	61	55		59		51
4. near *suahelica*	58–60 (3)	51–54 (4)	48–50 (2)		46 (1)	41–46 (3)
5. near *luapula* ?	58–63 (12)	53–58 (8)	49–53 (7)	56–60 (5)	46–48 (2)	51–53 (4)
6. near *luapula* ?	59–65 (8)	53–55 (5)	47–52 (once 56) (6)	55 (1)	48–59 (2)	51 (1)
7. near *luapula* ?	58–62 (4)	53–58 (6)	52 (1)	59–62 (3)	48 (1)	50–53 (3)
8. *C. g. schoutedeni*	63–68 (19)	57–61 (6)	50–58 (13)	60–67 (4)	54 (2)	52–57 (4)
9. *C. g. luapula*	59–66 (8)	54–56 (3)	50–55 (4)		46–47 (2)	
10. near *suahelica*	59–64 (12)	53–56 (11)	45–50 (6)	53–57 (5)	41–46 (6)	48–51 (3)

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A new subspecies of Yellow Canary *Serinus flaviventris*

by J. M. Winterbottom

Received 6th April, 1963

When I reviewed the races of the Yellow Canary *Serinus flaviventris* (Swainson) (Winterbottom, 1959), I defined the range of the typical subspecies as: "The coastal strip from Oranjemund, just north of the mouth of the Orange River, to Still Bay, Riversdale District." It has now become necessary to revise this range at both ends.

Re-examination of seven birds from Still Bay (3♂, 4♀) shows that they belong to the karoo form, *S. f. quintoni* Winterbottom 1959. Why this should be so it is difficult to see, since the vegetation at Still Bay, classified by Acocks (1953) as Coastal Macchia, is precisely the same as that along the Berg River, the type locality for *S. f. flaviventris*, and there are no physical obstacles between Still Bay and the Bredasdorp area, birds from which are normal *S. f. flaviventris:* whereas a big mountain range intervenes between Still Bay and the Little Karoo.

At the northern end of the range, Clancey (1963) has drawn attention to an apparent difference between the birds from north of the Olifants River and those from further south and has suggested (*in litt.*) that I should investigate this. With the help of material loaned by the Durban and East London Museums; this has now been done, and the difference noticed by Clancey, namely the presence of a green band across the breast of the southern birds, has proved constant. Since these southern birds constitute Swainson's *flaviventris*, the northern ones must be named and I name them as under:

Serinus flaviventris hesperus subsp. nov.

Description: ♂ Similar to *S. f. flaviventris* in all respects except that the whole under side from throat to vent is uniform yellow, without the green band which, with varying distinctness, occurs in *S. f. flaviventris*. Size the same. From *S. f. quintoni* of the Karoo, which also lacks the green chest-band, *S. f. hesperus* differs in being paler yellow below, and it also averages smaller. The two intergrade in western Bushmanland. The ♀ is indistinguishable from that of *flaviventris*, though in series rather more streaked on the under parts.

Range: From the Olifants River to Oranjemund, along the coastal strip.

Type: In the Durban Museum; ♂, Port Nolloth, collected 1st June, 1962; registered number 11,314.

Measurements: 27 ♂♂, w. 67–76, av. 71.3 mm.; 15 ♀♀, w. 66–74, av. 68.6 mm.

I am indebted to Mr. Clancey for drawing my attention to this new subspecies, for asking me to investigate it, and for the loan of comparative material; and to the Director of the East London Museum, Miss M. Courtenay-Latimer, for the loan of material.

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Pitta sordida (Müller)
The subspecies *sumatrana, javana,* and *mülleri*

by A. Hoogerwerf

Received 26th January, 1962

When comparing 18 specimens of this beautiful bird originating from Borneo, Sumatra and Java, I find it impossible to separate them on differences in the plumage of the under parts. There is very much individual variation in tint and extent of the colours on those parts and this, apparently, has nothing to do with any racial character.

Skins preserved in alcohol are unsuitable for comparison because the red on the belly turns to dirty or creamy white and there appears much more blue in the green of the under surface: perhaps only the black of the throat area and the green and black of the upper parts keep their original tint.

Boden Kloss[1] separated birds from Sumatra as *sumatrana* and those from Java as *javana*, selecting as the Types a male for *sumatrana* and a female for *javana*. In both cases the author mentioned the smaller amount of white on the remiges when compared with *mülleri* (*sumatrana* less than *mülleri; javana* less than *sumatrana*) and *sumatrana* should be somewhat smaller than *mülleri* from Borneo.

On p. 158 of his Handlist, Chasen[2] unites all three subspecies, whereas Voous[3] suggests recognising *javana* and rejecting *sumatrana*. I consider that both Chasen and Voous are wrong and that Boden Kloss' opinion is not realistic because he could study only two ♂ from Sumatra and one ♀ from Java when he separated *P. sordida* living on both these islands from Borneo's *mülleri*, for as a rule all females of this *Pitta* have much less white on the remiges than males.

It may be concluded from Voous' paper that, so far as the white on the wings is concerned, he does not distinguish between the males and the females studied by him.

When birds of both sexes are considered separately, there is good reason for uniting *javana* with *sumatrana*, but not for considering the latter race to be identical with *mülleri* as was done by Voous. Males of *mülleri* have decidedly more white on the remiges than have birds from Java or Sumatra as the following particulars will show.

All six males of *mülleri* before me have the outer web of the first primary partly white and the white area on the inner web (largest length) measures 40–45 mm; the black spot on that first primary varies from 9 to 12 mm. (measured along the edge of the inner web). In three males from Sumatra there is none which has white on the outer web of the first primary; the white area on the inner web varies from 17 to 22 mm. and in the only Javan male this white spot measures 22 mm. The black tip measures 20–22 mm. in the Sumatran and 23 mm. in the Javan skins. In the five females of *mülleri* of which only one has a small white spot on the first primary's outer web, the length of the white area on that primary's inner web varies from 14 to 30 mm; the black tip measures 21 to 28 mm.

From these scanty figures it is evident that the white on the wings of *mülleri* averages in being much more extensive than in Sumatran or Javan birds and there exists an important difference in this respect between the sexes which makes it futile to study this character without separating them.

Besides this character Boden Kloss supposes a difference in size between *mülleri* and *sumatrana* and this agrees with my experience, though the difference is slight which makes it desirable to obtain more material before accepting it as a subspecific character. There might also be some size difference between the sexes, females averaging somewhat smaller.

The blue on the tip of the tail (another difference mentioned by Boden Kloss) seems not to have subspecific value. In a male from south Sumatra this blue is absent, but our recently obtained bird from Sebuku (Sunda Strait) shows this colour very clearly. This Sebuku skin resembles our

Sumatran material regarding the white on the wings: it also agrees almost exactly with a male from Semarang (central Java) but has still less white on the wings. Both these birds agree perfectly with *sumatrana*. The gonads of the Sebuku bird were well developed (about 8 mm.).

The plumage of the skin studied by Voous[3] (from central Java) is a mystery to me because none of our birds resembles the description given by him. This skin may be regarded with some suspicion because it was bought on Djocja's bird market which was a famous place before the war where birds not only from Java, but from other parts of Indonesia and from abroad were offered for sale, and in this particular case certain human ''hanky-panky'' might have changed it.

By reason of the particulars stated, it seems justifiable to reject *javana* and to include within the range of *sumatrana* the island of Java.*

Measurements: (in mm.)

♂♂ Wing; *mülleri:* 110, 110, 111, 113, 116; *sumatrana:* 107, 110; Javan bird: 110; Sebuku bird: 110 mm.

Tail; *mülleri:* 35, 39, 40, 41, 42; *sumatrana:* 40, 42; Javan bird: 41; Sebuku bird: 41 mm.

Culmen; *mülleri:* 19, 19.2, 19.9, 21, 21.9; *sumatrana:* 19.6, 21.1; Javan bird: 20.6; Sebuku bird: 23.5 mm.

Max., min. and average measurements:

	mülleri	*sumatrana*	Javan bird	Sebuku bird
Wing:	110–116	107, 110	110	110
	112	108·50		
Tail:	35–42	40, 42	41	41
	39·40	41		
Culmen:	19–21·9	19·6, 21·1	20·60	23·50
	20·20	20·35		

♀♀ Wing; *mülleri:* 104, 106, 109, 110, 113 mm.
Tail; *mülleri:* 35, 36, 37, 40, 41 mm.
Culmen; *mülleri:* 18.6, 19.2, 20.5, 20.7, 22 mm.

Max., min. and average measurements:

	mülleri
Wing:	104–113
	108.40
Tail:	35–41
	39.80
Culmen:	18.6–22
	20.20

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[2] Chasen, F. N. Handlist of Malaysian Birds; *Bull. Raffles Museum*, Singapore, 11, 1935, p. 158.
[3] Voous, K. H. Notes on a collection of Javanese birds; *Limosa*, 21, 1948, p. 90/91.

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* I give priority to *sumatrana* in accordance with Reccommendation 24a of Article 24 of the International Code of Zoological Nomenclature.

Revision of the Quail Finch *Ortygospiza atricollis*

by MELVIN A. TRAYLOR

Received 22nd April, 1963

Historically, the various forms of the Quail Finch, both those with black and those with white chins, have all been considered races of one species for which the oldest name is *atricollis*. Chapin (1954, *Bull. A.M.N.H.*, 75B, p. 499) was the first to report that the two types occur together without intergradation. He found both in the eastern Ituri, the black-chinned *dorsostriata* at Bogoro on the escarpment, and the white-chinned *ugandae* at Kasenyi on the shore of Lake Albert. More recently, Benson (1955, *B.B.O.C.*, 75, p. 106) has shown that the two types overlap geographically in north-eastern Northern Rhodesia, and again in 1960 (*B.B.O.C.*, 80, p. 118) he found both together on the Lungwevungu River in extreme western Northern Rhodesia. In 1961, I also found both types in the Kalabo District of Barotseland, south of the Lungwevungu, so it was evident that there was a fairly broad overlap in this area.

Since the two types overlapped geographically in three areas without intergradation, it was apparent that two species must be involved. However, the race *ugandae* van Someren, from published descriptions, appeared to be intermediate, and made it difficult to allocate the various named forms to their proper species. Fortunately the type of *ugandae* has just been received by the Chicago Natural History Museum, and it is now possible, with the help of generous loans from other institutions, to determine the limits of the two species and their respective races. Altogether I have had 214 specimens for examination, and for their generosity in loaning me comparative material I would like to thank the authorities of the following institutions: American Museum of Natural History, British Museum (Natural History), Durban Museum and Art Gallery, National Museums of Southern Rhodesia, the Transvaal Museum, and the Instituto de Investigação Científica de Angola. I would particularly like to express my appreciation to Con Benson for stimulating my interest in this problem and for seconding to me his gifted collector Jali Makawa who secured most of the Kalabo specimens.

As a general picture of the distribution of the two types of Quail Finch, birds with large white chin spots, a broad white ring around the eye, and the upper mandible dusky instead of red are found from Abyssinia south through Kenya to Cape Province and east through the Rhodesias to Angola and Damaraland (*fuscocrissa*, *mülleri*, *et al.*). Birds with no white on the chin or eye ring, and with the whole bill red, are found around the southern edge of the equatorial forest from Gabon to Uganda (*gabonensis*, *fuscata* and *dorsostriata*). In the savannas of West Africa, and north and east of the forest in Sudan and Uganda lives a form that at first sight appears intermediate, having only a small white chin spot and at most a single line of white feathers around the eye (*atricollis*, *ansorgei*, *ugandae*). However, this latter group has the dusky upper mandible characteristic of the other white-chinned forms and in Uganda it overlaps the black-chinned *dorsostriata*. It is evident, therefore, that the *atricollis* group of races with restricted chin spots represents the *fuscocrissa* group with which it does not overlap, and all the white-chinned races from Senegal to Abyssinia and south to Cape Province must be considered one species.

The black-chinned races comprise a second species, to be called *gabonensis*, the oldest name.

There appears to be only one character that serves to distinguish the two species throughout the whole of their ranges: in *gabonensis* males the bill is always wholly red, while in *atricollis* males the upper mandible is always washed with dusky. The white chin spot varies geographically in *atricollis* as noted above, and even in nominate *gabonensis* and *dorsostriata* occasional white feathers may be found on the chin. However, in the three regions of geographical overlap (three races of *atricollis* and two of *gabonensis* are involved), there are other characters that make identification of the two species quite simple, even in museum specimens where the colour difference in the bill is hardly apparent.

In the Ituri and Uganda, *ugandae* is further distinguished from *dorsostriata* by the almost plain instead of streaked back, the very fine and sparse white barring on the breast, and the limited extent of the black on the throat of the male, which hardly extends onto the upper breast. The plain back and sparse pectoral barring are also characteristic of *atricollis* and *ansorgei*, and serve to set this group of races apart from the other white-chinned forms. Between *ugandae* and *dorsostriata*, *ugandae* averages slightly larger.

In north-eastern Northern Rhodesia the two species overlap geographically from the upper Luapula River and Luwingu Districts to Mporokoso and Abercorn. Here the representative races are *O. a. smithersi* and *O. g. fuscata*. Both of these races are the darkest of their respective species, and the differences between them are the least shown in any region of overlap. However, *smithersi* always has a broad white chin spot and eye ring, and dusky upper mandible, and I have seen no specimens that suggest intergradation. *Smithersi* averages slightly larger.

The two races that overlap in western Balovale and the Kalabo District of Barotseland are *O. a. mülleri* and *O. g. fuscata*. Here the differences are more pronounced, *mülleri* being altogether paler and with broader white pectoral barring than *fuscata*. The fact that the representative races vary in other characters than chin spot and bill colour precludes any possibility that the two species might be only colour phases. In this region also the *atricollis* representative averages slightly larger.

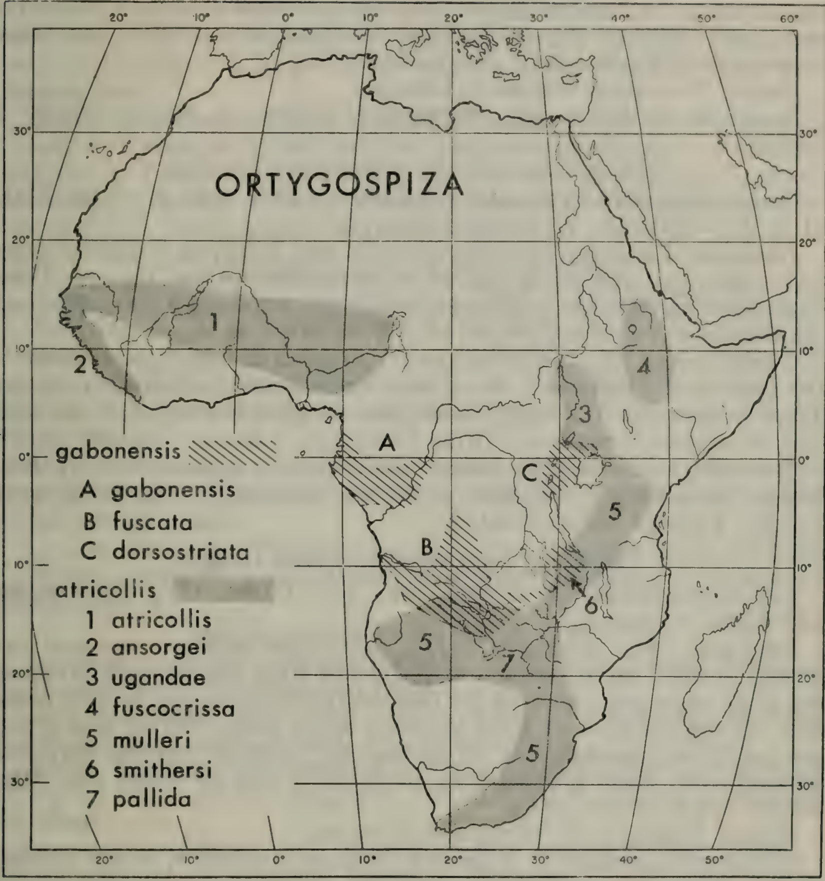
In habits and call notes there seem to be no differences between the two species. In the Northern Provinces Benson (1955) noted an ecological difference, *dorsostriata* preferring more moist habitats than *smithersi*. I noted the same distinction in Kalabo where *mülleri* was found on dry watershed plains and *fuscata* on damp flood plains. However, Benson collected both species within a few yards of each other along the Lungwevungu River, so their habitats are by no means exclusive. While there must be some ethological differences between the two, these will have to await more intensive study in the field.

Races of *atricollis*

Ortygospiza atricollis atricollis (Vieillot)

Fringilla atricollis Vieillot, 1817, Nouv. Dict. Hist. Nat., 12, p. 182—Senegal.

Synonym: *polyzona* (Temminck), 1823 (see S.A.O.S. List Committee, 1960, Ostrich, p. 76).


ORTYGOSPIZA
gabonensis ▨
A gabonensis
B fuscata
C dorsostriata
atricollis
1 atricollis
2 ansorgei
3 ugandae
4 fuscocrissa
5 mulleri
6 smithersi
7 pallida
1
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30°

Diagnosis: This race and *ansorgei* and *ugandae* form a natural group that is characterized by its almost plain, unstreaked back, and very sparse white barring on the breast. In *atricollis* males the black is confined to the throat, and the ground colour of the breast is grey-brown. The white chin spot is small, and in only one specimen out of 16 examined, a male from Mali, are there any white feathers around the eye. Wing length: 14 ♂ ♀, 51–54 (52.4).

Range: Grasslands from Gambia and Senegal east through Mali to extreme northern Ghana and northern and central Nigeria. Birds from the south bank of the Gambia River approach *ansorgei*.

Specimens examined (16). Senegal, 1. Gambia: South Bank Province, 4. Ghana, 1. Nigeria, 5. Mali, 6.

Ortygospiza atricollis ansorgei Ogilvie-Grant

Ortygospiza ansorgei Ogilvie-Grant, 1910, Bull. Brit. Orn. Club, 25, p. 84—Gunnal, Portuguese Guinea.

Synonym: *gambiensis* (Delacour), 1943.

Diagnosis: Generally darker than *atricollis* in both males and females, and in males the black of the throat extends further over the breast. One male from Nigeria is like *ansorgei*, but the Nigerian population as a whole is *atricollis*. Wing length: 8 ♂ ♀, 51–54 (53.0).

Range: Portuguese Guinea to Liberia.

Specimens examined (8). Portuguese Guinea, 2. Sierra Leone, 5. Liberia, 1.

Ortygospiza atricollis ugandae van Someren

Ortygospiza atricollis ugandae van Someren, 1921, Bull. Brit. Orn. Club, 41, p. 121—Mumias, N. Kavirondo.

Diagnosis: Distinguished from *atricollis* only in having a slightly larger white chin spot and a fine line of white feathers around the eye. These characters are constant in Uganda specimens, but some Sudan birds lack the white eye ring. Wing length: 19 ♂ ♀, 51–56 (53.3).

Range: White Nile and Equatoria provinces of Sudan, Uganda south to the latitude of Entebbe, N. Kavirondo and extreme eastern Ituri district. There seems to be a real gap between the range of this race and *atricollis*, and the species is not known from Cameroon, Chad or Ubangi-Chari.

Specimens examined (20). Sudan: White Nile, 3; Equatoria, 5. Uganda: Moyo, West Nile, 5; Entebbe, 1; Kenya: Mumias, 2 (including type). Congo: Kasenyi, Lake Albert, 4.

Ortygospiza atricollis fuscocrissa Heuglin

Ortygospiza fuscocrissa Heuglin, 1863, Jour. f. Orn., 11, p. 18—Dembea and Tigré, Abyssinia.

Diagnosis: The remaining races, *fuscocrissa*, *mülleri*, *smithersi* and *pallida*, form a natural group, distinguished from the *atricollis* group by the large white chin spot and eye ring, more numerous and broader white bars on the breast, and more streaked upper parts. Within this group, *fuscocrissa* is characterized by having the pectoral barring narrower, although still much broader than in *atricollis*, and by larger size. Wing length: 7 ♂ ♀, 55–59 (56.9).

Range: Highlands of Eritrea and Abyssinia.

Specimens examined (7). Abyssinia: Bichana, Gojam, 4; Arussi Plateau, 3.

Ortygospiza atricollis mülleri Zedlitz

O. [*rtygospigal*] (*sic*) *a.* [*tricollis*] *mülleri* Zedlitz, 1911, Journ. f. Orn., 59, p. 604—Simbiti, Wembere Steppes.

Synonyms: *bradfieldi* Roberts, 1929; *miniscula* White, 1946; *digressa* Clancey, 1958.

Diagnosis: Characterized by broad white pectoral barring and moderately streaked back; differs also from *fuscocrissa* by smaller size, and from *smithersi* and *pallida* by paler and darker coloration respectively. Within the vast range covered by this race some variation, particularly in dorsal coloration, can be discerned, but most of this appears to be due to post-mortem change. Fresh specimens always appear greyer above than old ones, and other characters that have been used to define races, such as a whitish belly, appear to be individual variants. Size is remarkably constant throughout its range. Wing length: 50 ♂ ♀, 52–57 (54.4).

Range: Western and southern Kenya south through central Tanganyika, northern Nyasaland and the Rhodesias to southern Mozambique, Natal, and Cape Province west to Cape Town, and west through western Northern

Rhodesia to south-west Angola and Damaraland. In the latter two localities it may not be a regular resident, since it has been found only once in each place. A single old record from north-west Angola probably belongs here.

Specimens examined. (70). Kenya, 16. Northern Rhodesia: Abercorn, 1; Ndola, 1; Kabompo, 2; Balovale, 4; Lungwevungu River, 3; Kalabo, 9; Lusaka, 2; Lochinvar, 1; Choma, 3; Kalomo, 3. Angola: Luacano, Moxico, 1; Huila, 6. South West Africa: Quickborn, 4. Southern Rhodesia, 13. South Africa: Northern Cape, 1.

Ortygospiza atricollis smithersi Benson

Ortygospiza atricollis smithersi Benson, 1955, Bull. Brit. Orn. Club, 75, p. 106—Mpasa, Bangweulu, 11° 00′ S, 30° 30′ E, Northern Rhodesia.

Diagnosis: Much the darkest race of *atricollis*, the back darker and more streaked, the black of throat and breast in the males more extensive, and the white pectoral barring somewhat reduced. Wing length: 18 ♂ ♀, 53–56 (54.7).

Range: Northern Provinces of Northern Rhodesia from Luapula River to Kasama and Mporokoso. A single male from Abercorn, however, appears to be *mülleri*.

Specimens examined (21). Northern Rhodesia: Luapula River, Mukuku, 1; Mpasa, Luwingu, 1; Chambesi-Lubansenshi watershed, 9; Kasama, 1; Mporokoso, 9.

Ortygospiza atricollis pallida Roberts

Ortygospiza atricollis pallida Roberts, 1932, Ann. Transv. Mus., 15, p. 32—Nkate, northern Bechuanaland.

Diagnosis: Much paler than *mülleri* and more greyish on the back; belly more consistently whitish. Wing length: 12 ♂ ♀, 53–57 (54.7).

Range: Northern Bechuanaland from the western side of the Okavango swamp to Nata and the Makarikari Pan; the Wankie district of Southern Rhodesia.

Specimens examined (18). Bechuanaland: Nokanen, Ngamiland, 5; Nkate-Nata area, 7. Southern Rhodesia: Odiakwe, 1; Nehimba, Wankie, 1; Sibanini Pan, Wankie, 4.

Races of *gabonensis*

Ortygospiza gabonensis gabonensis Lynes

Ortygospiza gabonensis Lynes, 1914, Bull. Brit. Orn. Club, 33, p. 131—Gabon.

Diagnosis: Smallest race of the species. The outer webs of the dorsal feathers pale in contrast to the dark centres, giving a sharply streaked effect. White pectoral barring slightly broader than in *fuscata* and *dorsostriata*. Wing length: 5 ♂ ♀, 48–49 (48.4).

Range: Spanish Guinea and Gabon, and both banks of the middle Congo.

Specimens examined (6). Spanish Guinea, 1. Gabon, 4. Moyen Congo, 1.

Ortygospiza gabonensis fuscata Sclater

Ortygospiza atricollis fuscata Sclater, 1932, Bull. Brit. Orn. Club, 52, p. 142—Kawambwa, Northern Rhodesia.

Diagnosis: Darker than either *gabonensis* or *dorsostriata*, so dark on the upper parts that the dorsal streaking is obscured. Wing length: 19 ♂ ♀, 52–55 (53.3).

Range: North-western Angola to southern Kasai, western Katanga, and western and northern Northern Rhodesia. A female from the coastal plain of Luanda, Angola, recently collected by Rosa Pinto, marks a surprising extension of range westward from the highlands of the interior. I have had the privilege of examining the specimen, and it is a typical *fuscata*, showing no appraoch to *gabonensis*.

Specimens examined (33). Northern Rhodesia: Fort Rosebery, 3; Kasama, 1; Kawambwa, 9; Luakela—Chitunta confluence, 1; Mporokoso, 1; Abercorn, 3; Ndola, 3; Solwezi, 1; Kabompo, 1; Salujinga, 1; Lungwevungu River, 2; Kalabo, 4. Angola; Dondi, Huambo, 2; Quifangondo, Vale do Bengo, Luanda, 1.

Ortygospiza gabonensis dorsostriata van Someren

Ortygospiza atricollis dorsostriata van Someren, 1921, Bull. Brit. Orn. Club, 41, p.115—South Ankole, Uganda.

Diagnosis: Paler than *fuscata* and more noticeably streaked above; larger and darker than *gabonensis*. Wing length: 13 ♂ ♀, 49–53 (51.7).

Range: Extreme eastern Kivu from the south-west shore of Lake Albert to the northern end of Lake Tanganyika; Ruanda, Bukoba on Lake Victoria, and southern and central Uganda.

Specimens examined (16). Congo: E. Ituri, 4; Rutshuru Plain, Kivu, 2; south Ruwenzori, 3. Uganda: Entebbe, 3; Masaka, Budda, 1; Butiti, 1; S. Ankole, 2 (including type).

The geographical variation in the Marico Flycatcher *Bradornis mariquensis* Smith, with the description of a new race

by Walter J. Lawson

Received 22nd March, 1963

This rather drab-coloured flycatcher is endemic to southern Africa, its distribution being confined to South West Africa (except southern Great Namaqualand), northern Cape Province (south to Kuruman), Bechuanaland, western Southern Rhodesia and the dry western Transvaal; also extending northwards into southern Angola and Barotseland, south-western Northern Rhodesia.

It was regarded as monotypic until Irwin demonstrated geographical variation, when he described *B. m. acaciae*, based on specimens from Ohopoho, South West Africa. *B. m. acaciae* was considered to be more or less confined to Ohopoho, but further research has shown that its range is considerably more extensive than at first believed.

A critical study of the geographical variation in *Bradornis mariquensis*, was recently carried out in the Durban Museum and it is proposed that three races should be recognised in preference to the existing two.

B. mariquensis shows a pattern of colour and size variation which is now known to be normal for bird species distributed from the periphery of absolute desert in western South West Africa eastwards to mesic conditions reigning in the thornveld savannas of interior south-eastern

Africa. This variation is in a sense clinal, but sufficiently clearly stepped to permit of naming of parts of the cline as subspecies, and I believe the interesting colour variation in this flycatcher to be adequately demonstrated in our formal recognition of three racial taxa, the nomenclature, characters and ranges detailed hereunder.

(a) *Bradornis mariquensis mariquensis* Smith

Bradornis mariquensis A. Smith, *Illustr. Zool. S. Afr.*, Aves, pl. 113, 1847: ''South Africa'', restricted to Marico River, Transvaal.

Upper parts umber brown, with a marked greyish cast imparting a mouse-coloured appearance. Small sized.

Measurements: 10 ♂♂ wing 78.0–92.0 (86.7), tail 72.0–82.5 (76.7), culmen 16.0–17.5 (16.8); 10 ♀♀ wing 80.0–88.0 (84.1), tail 70.5–79.0 (72.9), culmen 16.0–17.5 (17.0) mm.

Material: 147 (northern Cape Province (Kuruman, Molopo River) 4, western Transvaal 17, Bechuanaland Protectorate 25, Caprivi 3, Southern Rhodesia 98).

Range: From the northern Cape Province, through the western Transvaal, northwards to eastern and north-eastern Bechuanaland Protectorate, the Caprivi Strip, extreme southern Barotseland, Northern Rhodesia to western Southern Rhodesia east along the Limpopo River to beyond Beit Bridge.

Remarks: Intergrades with *B. m. vinaceus* where the two forms meet, the specimens of *B. m. mariquensis* usually showing an increase in size.

(b) *Bradornis mariquensis vinaceus* subsp. nov.

Type: ♂ ad. Tsane, Bechuanaland Protectorate. 31st May, 1957. No collector stated on label. In the collection of the National Museum of Southern Rhodesia, Bulawayo, Reg. No. 31355.

Diagnosis: Separable from the other races in its saturated vinous brown upper parts, the rump distinctly reddish, lacking the yellow or sandy coloration of *B. m. acaciae* and the dull brownish dorsal appearance of the nominate race. Rather larger than *B. m. mariquensis*, and also averaging bigger than *B. m. acaciae*.

Measurements: 10 ♂♂ wing 86.5–92.0 (90.1), tail 74.0–84.0 (79.5), culmen 17.0–18.0 (17.2); 8 ♀♀ wing 87.0–94.0 (89.6), tail 74.5–84.0 (79.4), culmen 16.0–19.0 (17.4) mm.

Material: 36 (South West Africa 20, Bechuanaland Protectorate 14, western Northern Cape Province 2).

Measurements of Type: wing 89.5, tail 83.0, culmen 17.5 mm.

Range: The interior plateau of South West Africa (not in the Namib, nor in southern Great Namaqualand), east to the extreme western Northern Cape Province through the Kalahari Desert, north to Ngamiland, but not in eastern Bechuanaland Protectorate, nor in the western Transvaal, where the nominate race occurs.

(c) *Bradornis mariquensis acaciae* Irwin

Bradornis mariquensis acaciae Irwin, *Bull. Brit. Orn. Cl.*, vol. 77, (7), 1957, p. 118: Ohopoho, Kaokoveld, South West Africa.

Differs from the nominate race in having the upper parts a yellowish, sandy brown. Larger in size.

Measurements: 10 ♂♂ wing 86.5–91.0 (89.0), tail 76.0–81.0 (78.5), culmen 16.5–18.5 (17.5); 10 ♀♀ wing 84.5–90.5 (87.7), tail 73.5–80.5 (77.9), culmen 17.0–18.5 (17.5) mm.

Material: 36 (all from South West Africa, Ohopoho, Kaoko-Otavi, Omaruru Rheboth, Erongo Mtn. etc.)

Range: From the Kaokoveld, south in the Namib Desert to western Damaraland, South West Africa. Not in the interior plateau.

Acknowledgements:

For the loan of additional material I am indebted to the Directors of the South African Museum, Cape Town (through Dr. J. M. Winterbottom); Transvaal Museum, Pretoria (through Mr. O. P. M. Prozesky), and the National Museum of Southern Rhodesia, Bulawayo (through Mr. M. P. Stuart Irwin). I am also indebted to Mr. P. A. Clancey, Director of the Durban Museum, for his assistance.

Additional notes on the Philippine Elegant Titmouse, *Parus elegans*

by KENNETH C. PARKES

Received 5th April, 1963

In my revision of the Elegant Titmouse, *Parus elegans* (Parkes, 1958), an endemic species of the Philippine archipelago, I used the name *P. e. visayanus* (Hachisuka) for a subspecies confined to the island of Cebu. In a paper on the birds of the latter island, Rabor (1959) called the Cebu titmice *P. e. albescens* (McGregor), a name which I had applied to the populations of Ticao (type locality), Masbate, Guimaras, and Negros, with the provision that Negros specimens were not quite typical. I considered the Cebu race *visayanus* most similar, not to *albescens* as might have been expected on geographic grounds, but to *P. e. elegans* of Luzon, Mindoro, and Panay.

Rabor's use of *albescens* for the Cebu population would imply that he considered these birds inseparable from those of Negros and the other islands listed above. His paper discusses the disappearance of a number of forest species following the almost total clearing of the land on Cebu. It occurred to me that the discrepancy in our identifications of Cebu titmice might be explained if *P. e. visayanus* had been extirpated, or nearly so, and Cebu repopulated with representatives of *albescens* from nearby Negros; at the time of my revision, only old specimens from Cebu were available to me. Through the courtesy of the authorities of the Chicago Natural History Museum and U.S. National Museum, I therefore assembled a series consisting of the five old Cebu specimens originally examined, plus four recent specimens from the same island. I also borrowed both old and new specimens from Negros, to supplement a series from Masbate in Carnegie Museum, considered typical of *albescens*. No topotypes of *albescens* from Ticao are known to exist at present (see Parkes, 1958: 101).

Recently taken specimens of *Parus elegans* from Cebu do not differ significantly from the older ones originally considered to represent *P. e. visayanus*. Re-examination of Negros birds shows that the population from that island is rather variable, and occasional males do approach *visayanus* to some extent. The sample as a whole, however, is clearly closest to *albescens*. Direct comparison of *albescens* and *visayanus* in my 1958 paper was brief, and was confined to males (Parkes, 1958: 103). An expanded comparison may conveniently be given here.

Typical males of *albescens* are characterized by the great amount of white on the dorsum, and the especially large white spots on the tips of secondaries and wing-coverts. In Negros specimens this prevalence of white is somewhat less marked than in those from Masbate. The under parts of *albescens* are clear yellow, with little darkening on the flanks. In contrast, Cebu males show less white on the back, and smaller white spots on the wing, although some Negros males are close to *visayanus* in the latter character. Cebu males are distinctly duller yellow below than are those from Negros and Masbate, and have markedly darker greenish-grey flanks. Some Negros males have a pronounced yellow wash dorsally, affecting the dorsal spots and rump colour; this extreme is not reached by any Masbate *albescens* seen, and represents a tendency *away* from the colour of *visayanus*, which has a bluish or greyish rump.

In my 1958 paper, the black throat patch of *albescens* was stated to be less extensive than that of *elegans* (p. 101) or *visayanus* (p. 103). This character does not appear to be trustworthy; four Masbate males are rather consistent in having a somewhat restricted throat patch, but both Negros and Cebu males are highly variable in this respect, even when comparing skins of similar "make."

As for females, only a single rather poor specimen of *visayanus* was available at the time of my 1958 revision. Two additional specimens now confirm my statement that female *visayanus* "is very similar to *elegans*, differing chiefly in having greyer flanks and slightly less white spotting on the wings." Female *albescens* differ in being more generally yellowish rather than greyish-green dorsally, with yellow spots anteriorly; in having slightly larger white wing spots, and in being brighter, clearer yellow below, with little or no darkening on the flanks (as in males).

The respective ranges of *Parus elegans visayanus* and *P. e. albescens* may thus continue to stand as given in my 1958 paper, with the slight modifications in diagnostic characters noted above.

Deignan (1961: 341) has listed a specimen in the U.S. National Museum as the "type" of "*P*(*arus*). *albescens Baird*", 1858. This name, if nomenclatorially available, would jeopardize the later name *Pardaliparus albescens* McGregor, 1907, as used above. Baird's name appears only in an annotated table of contents (Baird, 1858: xxxvii), where the distribution of *Parus septentrionalis* is given in the following words: "Missouri river to the Rocky mountains, or else replaced there by *P. albescens.*" The reader is referred to page 389, but the name *albescens* does not appear on that or any other page, except page xxxvii. Several specimens are mentioned on page 389, including one from New Mexico to which the name *albescens* was probably intended to apply, and to which Deignan has applied it. Ridgway (1904: 401) considered this name to be a *nomen nudum*, and such I believed it to be. In view of Deignan's formal recognition of a "type" of "*albescens*", however, I thought it best to get an expert opinion, and consulted Dr. Ernst Mayr. After carefully studying the situation, Dr. Mayr concurs with Ridgway that Baird's name is a *nomen nudum* and not available, pointing out that "there is no reference to any specimen, description or illustration as required by the Code'' (letter of 7th January 1963). Thus the ''type'' listed by Deignan has no such status, and the name *Pardaliparus albescens* McGregor continues to be available for a subspecies of *Parus elegans*, as used in the present paper.

An unfortunate error in my 1958 revision needs to be corrected. I wrote (Parkes, 1958: 96): ''The Elegant Titmouse is the only species of its family to have reached a tropical archipelago.'' This, of course, was an inexcusable *lapsus*; there is another species of titmouse in the Philippines (*Parus semilarvatus*), and two species (*Parus major* and *Melanochlora sultanea*) occur in Malaysia.

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Notes on *Ducula rosacea* (Temminck) living on the Karimundjawa and Kangean Archipelagos

by A. Hoogerwerf

Received 16th July, 1962

Though there is some variation in the colour of nearly all parts of the plumage in birds from the same localities (even of birds with equally developed gonads) those differences are not very important in the specimens before me. Besides 19 birds from the Karimundjawa Archipelago among which are 16 freshly collected skins, we have five from the Kangean Islands, one from Bawean and seven old skins from more eastern localities, together with a bird from Billiton Island. We could not study any material from the Bay of Djakarta or the Thousand Islands (North of Djakarta), but the late Dr. G. C. A. Junge was so kind as to measure for me the six specimens from Djakarta Bay present in the Leyden Museum.

Besides the typical race known from many parts of Indonesia, the subspecies *zamydrus* (from Solombo and Arends Islands, eastern Java sea) and *whartoni* (Christmas Island) are known. This last race does not interest us here because of its much larger size, so that we may concentrate our attention on *zamydrus*. This subspecies was separated by Oberholser on account of its being ''decidedly darker above, with the metallic sheen on interscapular region and posterior parts more evident (less overlaid with gray)''.

After comparing three *Ducula rosacea* from Karimundjawa, Chasen[1] wrote: ''The characters relied upon for the separation of *zamydrus* are not of racial significance'' because those Karimundjawa birds were paler and had the metallic sheen less obvious than a bird from Romah Island (Southwestern Islands, east of the Smaller Sunda Islands). But two years later in his Handlist of Malaysian Birds (1935) he includes Karimundjawa within the range of the typical race, though "they of course may belong to the subspecies *zamydrus*".

When considering our material from the Karimundjawa Archipelago we reach quite another conclusion because birds from this locality average decidedly darker than nearly all other skins studied by me, including the small series of freshly obtained birds from the Kangean Islands. These birds do not only average darker on the wings and the mantle, but also on the nuchal region and on the vinaceous area of neck and head; they also average darker on the lower parts, but do not differ in the colour of the under tail-coverts. Last but not least they have more metallic sheen on the wings and the mantle, in some individuals so strongly that they show some similarity to *aenea*. Owing to the dark nuchal area there is much less contrast with the darker mantle than is the case in freshly collected Kangean birds. When eleven birds are laid belly down and the five lightest skins are selected, they include all four Kangean birds and as we select from the same series the five darkest birds, showing most strikingly the metallic sheen, they all originate from the Karimundjawa Islands, so there seems some reason to accept Oberholser's *zamydrus*, though it is strange that the population living on the Kangean Islands does not show any resemblance to *zamydrus*. The only bird from Billiton Island we possess is one of the lightest specimens we could study, though the difference between one old Kangean skin and three old birds from Karimundjawa is less pronounced than is the case in fresh material.

The only bird we obtained from Bawean Island seems to be much closer to *zamydrus* so that we think it justified to include Bawean within the range of this subspecies.

When birds from Kangean may be seen as good representatives of the nominate race, it may be remarked that two old skins from Billiton and Tual (Kei Islands, East Indonesia) appear also to belong to this race. But six old skins from the Southwestern Islands (Moa, Wettar, Kissar and Rhoma) and two from Kaloa Tua (North of Flores) and Letti seem to resemble *zamydrus*, especially on the upper parts.

On the Kangean Archipelago and Bawean Island both *Ducula aenea* and *Ducula rosacea* do occur, but on Karimundjawa only the latter species and on the islands around the Sunda Strait we found only *Ducula aenea*, whereas on the small islands in the Bay of Djakarta, which I visited innumerable times, I found *D. rosacea* and never *D. aenea*.

From the measurements given below it is evident that there are no important size differences between the typical race and *zamydrus*. though the three males from Djakarta Bay (measured by Junge) seem to have a somewhat shorter tail than have Karimundjawa birds and those from the Smaller Sunda Islands and the Kei Islands. The average weight of Karimundjawa males is 413.62 gr. and that of Kangean birds 389.50 gr. which difference does not seem very important for such large birds. Females from the Karimundjawa Islands average in weight 360.5 gr.

Measurements:

♂♂ Wing; *rosacea* (Kangean Archipelago): 220, 227, 233, 235; *zamydrus* (Karimundjawa Archipelago): 218, 228, 230, 230, 230, 231, 232, 232, 234, 235, 236; *zamydrus* (Southwestern Islands and Kaloa Tua): 237, 246, 253; *whartoni* (Christmas Island, *ex. lit.*): 254, 260, 269, 270, 271, 271, 273 mm.

Tail; *rosacea* (Kangean Archipelago): 143, 148, 150, 155; *zamydrus* (Karimundjawa Archipelago): 143, 144, 147, 150, 150, 152, 155, 155, 161, 161; *zamydrus* (Southwestern Islands and Kaloa Tua): 155, 160, 161; *whartoni* (Christmas Island, *ex lit.*): 172, 180, 181, 183, 186, 186, 186, 189 mm.

Culmen; *rosacea* (Kangean Archipelago): 19, 19.5, 20, 21; *zamydrus* (Karimundjawa Archipelago): 18.1, 19.2, 19.5, 19.5, 19.8, 20, 20.5, 20.5, 20.7, 21, 21.5; *zamydrus* (Southwestern Islands and Kaloa Tua): 19.2, 20.9, 21; *whartoni* (Christmas Island, *ex lit.*): 18, 20, 20, 20, 20, 20, 21, 22 mm.

Max., min. and average measurements: (in mm.)

	rosacea (Djakarta Bay) (3♂, Junge)	*rosacea* (Kangean)	*zamydrus* (Karimundjawa)	*zamydrus* (SW. Islands)	*whartoni* (Christmas Island) 8♂
Wing:	219–235	220–235	218–236	237–253	254–273
	228	228·75	230·55	245·33	266·86
Tail:	130–143	143–155	143–161	155–161	172–189
	137	149	151·80	158·67	182·88
Culmen:	17–19	19–21	18·1–21·5	19·2–21	18–22
	18	19·88	20·03	20·37	20·13

♀♀ Wing; *zamydrus* (Karimundjawa Archipelago): 218, 218, 222, 222, 225, 226, 233, 237; *zamydrus* (Bawean Island): 234; *zamydrus* (Southwestern Islands and Kaloa Tua): 224, 231, 237, 238, 238; *whartoni* (Christmas Island *ex lit.*): 258, 267 mm.

Tail; *zamydrus* (Karimundjawa Archipelago): 140, 144, 145, 148, 150, 151, 160; *zamydrus* (Bawean Island): 156; *zamydrus* (Southwestern Islands and Kaloa Tua): 135, 145, 146, 148, 151; *whartoni* (Christmas Island, *ex. lit*): 172, 175, 187 mm.

Culmen; *zamydrus* (Karimundjawa Archipelago); 17.4, 18.1, 19.1, 19.5, 19.8, 20, 20.6; *zamydrus* (Bawean Island): 16.8; *zamydrus* (Southwestern Islands and Kaloa Tua): 18.9, 19.3, 21, 21, 22.5; *whartoni* (Christmas Island, *ex lit.*): 20, 20, 21 mm.

Max., min. and average measurements:

	rosacea (Djakarta Bay) (2♀, Junge)	*zamydrus* (Karimundjawa)	*zamydrus* (Bawean)	*zamydrus* (SW. Islands)	*whartoni* (Christmas Island (3♀)
Wing:	225, 231	218–237	234	224–238	258, 267
	228	225·13		233·60	262·50
Tail:	139–149	140–160	156	135–151	172–187
	142·33	148·29		145	178
Culmen:	16–19	17·4–20·6	16·80	18·9–22·5	20–21
	18	19·25		20·54	20·33

Reference:

[1] Chasen, F. N. A small collection of Birds from the Karimun Djawa Islands; *Treubia*, 14, 1933, p.166.

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CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

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CORRESPONDENCE

Other correspondence should be addressed to the Hon. Secretary, Dr. J. G. Harrison, "Merriewood", St. Botolph's Road, Sevenoaks, Kent.

DINNERS AND MEETINGS FOR 1963

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The six hundred and eleventh meeting of the Club was held at the Rembrandt Hotel, London, on the 19th November, 1963.

Chairman: Major-General C. B. Wainwright

Members present, 23; Guests 4.

Dr. A. J. Cain addressed the meeting on speciation in fruit pigeons (*Ptilinopus*) of the south-west Pacific.

A new name for *Streptopelia lugens arabica*

by Derek Goodwin

Received 17th November, 1963

When naming the Arabian form of the Dusky Turtle Dove (*Bull. B.O.C.* 83; 125–6) I overlooked that the name *arabica* was pre-occupied by *Streptopelia roseogrisea arabica* (Neumann). I therefore propose the name

Streptopelia lugens bishaensis nom. nov.

for *Streptopelia lugens arabica* Goodwin, pre-occupied.

Several ornithologists have written to me pointing out my error and I should like to acknowledge their kindness.

Distribution of the Coscoroba

by DEAN AMADON

Received 4th July, 1963

C. J. O. Harrison (1962, *Bull. British Orn. Club*, 82: 90) in miscellaneous notes on waterfowl lists egg clutches of the Coscoroba Swan (*Coscoroba coscoroba*) from Buenos Aires province, Argentina and from Rio Grande do Sul province, Brazil. Both of these areas are north of the breeding range as given in Delacour's recent *Waterfowl of the World* and Harrison suggests that the breeding range of the species may have shrunk because of the spread of civilization. However, many of the vast marshes of Buenos Aires province remain undrained and I myself saw breeding Coscorobas there in 1959. More recently Steinbacher (1962, *Abh. Senkenbergischen Natur. Gesell.*, no. 502) has published a nesting record from Paraguay. The late E. Kaempfer collected specimens in Rio Grande do Sul in the 1920's. *Coscoroba* thus probably occurs throughout its former range. I have commented on this species at greater length in a manuscript sent for publication in *Novedades Colombianas.*

Eggshell pigmentation in the Jacobin Cuckoo, *Clamator jacobinus* (Bodd.)

by C. J. O. HARRISON

Received 20th March, 1963

Friedmann (1948), when discussing the Jacobin Cuckoo, *Clamator jacobinus*, states that the eggs laid by this species in Asia and Ethiopia are bluish-green (although, from eggs of the species in the collection of the British Museum (Natural History) it would seem more accurate to describe them as "light blue, occasionally greenish"). Those of the South African birds are stated to be always white. He was puzzled by, but accepted, the record of a white oviduct egg from a female shot in Kenya, but doubted the record of a similar oviduct egg taken by Paludan near Timbuktu, in French Equatorial Africa. Paludan recorded that the egg was not quite ready to be laid, and Friedmann suggests that it may have been just about to receive its pigment when the bird was shot.

This would infer that the blue pigment was a superficial one, applied to the surface of a white shell. It has been found, however, that where blue coloration occurs in eggshells it is usually present throughout the whole thickness of the shell and constitutes an alternative to the white colour. (Harrison, in press). To verify whether this is true of the eggs of *C. jacobinus*, small fragments of four eggs of this species were examined under the microscope. Three of these had been taken in Uganda and one in Kenya, and all four were blue. When these shells were examined it was found that the blue colour was present throughout the thickness of the shell in the typical manner. From this we must conclude that if the eggs were removed from the oviduct at any stage in shell formation they would appear blue, if that was to be a part of the final pigmentation.

The only other possibility here is that an egg might be white in the oviduct and become blue when laid. Mrs. B. P. Hall informs me that the eggs of the Stilt, *Himantopus himantopus*, when freshly removed from the oviducts of dead birds, appear blue, showing that this would occur as a normal colour in an oviduct egg. (The eggs of this latter species appear olive-green when laid, owing to the addition of a superficial yellow or buffish layer which modifies the appearance of the blue colour.)

In some species, as for example the White-browed Jay-thrush, *Garrulax sannio*, the eggs vary from one individual to another and may be either blue or white; while it is not unknown for occasional individuals of species such as the Jackdaw, *Corvus monedula*, and the Song Thrush, *Turdus philomelus*, which usually lay blue eggs, to lay eggs with a white ground colour. Since the trend towards white eggs is already established in South Africa, these records from further north may represent a similar tendency, or a zone of intergradation, rather than abnormal variation.

References:
Friedmann, H. 1948. The parasitic cuckoos of Africa. *Washington Acad. Sci. Monogr.* No. 1.
Harrison, C. J. O. The distribution, within the eggshell, of the pigments producing egg coloration. *Bull. B.O.C.* (in press).

Some subspecies of *Gracula religiosa* (Linn.) living in Indonesia

by A. HOOGERWERF

Received 1st July, 1962

From the measurements given below it is evident that, with the exception of *robusta* and *batuensis*, size differences in the races of *Gracula religiosa* seem not to be important enough to be accepted as subspecific characters. The birds belonging to this species obtained by me on Bawean Island and on the islands of the Kangean Archipelago, do not differ much in size from specimens of the nominate race.

According to Kuroda[1] the subspecies *baweana* was separated on account of the bare occipital lappets being wider and longer and the sides of the crown being more greenish than in the typical form living on Java. When comparing five adult skins from Bawean with many of the typical race before me, none of these characters could be found, which makes the diagnosis quite unfit for distinguishing *baweana* from *religiosa*. There is not a green hue on the crown and the naked lappets are not wider or longer but the contrary is true: the lappets in our *baweana* average smaller and narrower than in *religiosa*. The only difference I could discover is formed by the basal junction of the lappets being well visible in *baweana* and the feathered strip between the lappets averaging more narrow than seems to be the case in *religiosa*. On account of this character *baweana* closely resembles *enganensis* from which, however, it differs in having the naked skin below the eye (Stresemann's "Subocularfeld"[2]) more extensive, for this area is very narrow and small in *enganensis* as was pointed out by Junge[3]. Also the feathered strip separating the lappets (Stresemann's "Parialstreif") is wider in *baweana*, which seems also to be a trifle heavier in bill and feet.

In view of the great value Stresemann attached to the basal connection of the occipital lappets, I paid special attention to this character. As a result of my study on about 40 skins of this grackle I am not very enthusiastic about this character and consider it very risky to use it for separating certain birds. To begin with it seems to me not quite clear what Stresemann really means when speaking about that character; that is to say, whether it is necessary that the connection between the two lappets must be visible outside the feathering or we have to push away those feathers and lift up the lappets. In the rare cases where the connection is visible outside the short feathers, this might be caused by damage done to the plumage or by the decay of the skin which is very weak in that particular area. When lifting up the naked lappets one may succeed in discovering that junction, even in many birds belonging to the typical form which—according to Stresemann—should have the lappets separated. In three skins of *batuensis* before me two show this basal junction but in the third specimen I failed to discover it, even when lifting the lappets, and the ''Parialstreif'' is as wide as the ''best'' specimen of *religiosa*. Nevertheless Stresemann is of opinion that *batuensis* is not a valid race and united it with *enganensis* which shows the basal connection or has the ''Temporalwulst'' very narrow.

In our Kangean birds too the basal connection of the lappets is sometimes present but as often not. Some uniformity on this point can be established in *enganensis* of which, however, we could examine only three skins and in the five adult birds of *baweana* in which the basal connection is present or the lappets are separated by a very narrow ''Parialstreif''.

To see some subspecific character in size differences of the occipital lappets seems not well justified, because there is a considerable amount of variation in birds belonging to the same subspecies which is very obvious in the large series of the typical race before me and still more in the three skins of *batuensis*. In our material of *religiosa* it is the female, in *batuensis* the male which has the largest occipital lappets; as a rule young birds have smaller lappets than adult ones.

There is also considerable individual variation in the form and in the area of the naked skin below the eye and the skin which runs from the lappets to the corner of the eyes (Stresemann's ''Temporalwulst''). It may be considered as certain that on this there is much variation in the living bird, but the difference may be accentuated by the taxidermist, a fact which was pointed out by Stresemann. In my opinion this also holds good for the feathered area separating the ''Temporalwulst'' from the eye-corner, to which Stresemann attaches also some subspecific value when comparing *enganensis* with birds of the typical race.

The colour of the plumage does not vary much in the birds before me, but some of them show a greenish instead of a violet-bluish hue on most of the feathers, sometimes on the back, sometimes on the under parts or on both as is the case in the three birds of *batuensis*. Much green on the upper parts occurs also in a bird from Sumatra, in one from Java, one from Bali and in two from Durian, all belonging to the typical form. All birds from Bawean and Kangean are less glossy on the occiput: the velvet like ''cushions'' are not only much duller but average smaller than in *religiosa*. But all those birds had poorly developed gonads which might influence the plumage of that special area and not be of subspecific value. And I think this also holds good for the size and form of the bill to which Stresemann attached some importance, which could not be confirmed by Junge[4].

Concluding I think *baweana* to be a very ''thin'' race; birds from Kangean can best be included into *religiosa* in accordance with the present situation. Perhaps the subspecies *batuensis* may only be maintained because of its slightly larger wing, though Stresemann does not accept this character. Also Finsch[5] found for four birds from Pulau Batu wing measurements from 190 to 195 mm. The subspecies *enganensis* is distinguishable from birds belonging to the other forms on account of the narrow "Parialstreif" and the small "Subocularfeld".

Measurements: (in mm.)

♂♂ Wing; *religiosa:* 168, 174, 176, 183, 184; Kangean bird: 177; *baweana:* 178, 182, 185; *enganensis:* 172, 172, 177; *batuensis:* 178, 193; *robusta:* 211 mm.

Tail; *religiosa:* 78, 81, 83, 89; Kangean bird: 93; *baweana:* 86, 87, 90; *enganensis:* 83, 92; *batuensis:* 80, 93; *robusta:* 97 mm.

Culmen; *religiosa:* 26.5, 27, 27.1, 27.5, 27.7; Kangean bird: 25.5; *baweana:* 25, 27.2, 27.5; *enganensis:* 24.2, 25.5, 27; *batuensis:* 27, 28.8; *robusta:* 25.8 mm.

Max., min. and average measurements:

	religiosa	*religiosa* (Kangean)	*baweana*	*enganensis*	*batuensis*	*robusta*
Wing:	168–184	177	178–185	172–177	178, 193	211
	177		181·67	173·67	185·50	
	ex lit: 174		*ex lit:* 174·50	*ex lit:* 163–176 (5♂)		
Tail:	78–89	93	86–90	83, 92	80, 93	97
	82·75		87·67	87·50	86·50	
			ex lit: 85	*ex lit:* 80–86 (5♂)		
Culmen:	26·5–27·7	25·50	25–27·5	24·2–27	27, 28·8	25·8
	27·16		26·57	25·57	27·90	
			ex lit: 27	*ex lit:* 24–27 (5♂)		

♀♀ Wing; *religiosa:* 169, 169, 172, 179, 181; Kangean birds: 165, 168, 171, 172, 173; *baweana:* 177; *batuensis:* 180 mm.

Tail; *religiosa:* 78, 80, 82, 83, 85; Kangean birds: 79, 83, 83, 84, 86; *baweana:* 87; *batuensis:* 82 mm.

Culmen; *religiosa:* 23, 25.3, 26.2, 27.5, 28.1; Kangean birds: 25.1, 25.2, 25.5, 25.7, 26; *baweana:* 23.7; *batuensis:* 30 mm.

Max., min. and average measurements:

	religiosa	*religiosa* (Kangean)	*baweana*	*enganensis* (*ex lit:* 1♀)	*batuensis*
Wing:	169–181	165–173	177	173	180
	174	169·80			
	ex. lit: 162		*ex lit:* 170		
Tail:	78–85	79–86	87	86	82
	81·60	83			
			ex lit: 84		
Culmen:	23–28·1	25·1–26	23·70	25	30
	26·02	25·50			
			ex lit: 24·50		

Weight:

♂♂ *religiosa*, Kangean Archipelago: 250 gr.; *baweana:* 290, 338 gr.

♀♀ *religiosa*, Kangean Archipelago: 160, 220, 240, 260, 270 gr; *baweana:* 330 gr.

Shortly before publishing this paper, Vol. XV of Peters' Checklist of Birds of the World appeared in which Oberholser's *Gracula javensis baweana* together with Salvadori's *Gracula enganensis* are united with *Gracula r. religiosa* Linnaeus. So far as it concerns the first subspecies I can agree, but I am of the opinion that there is sufficient reason to uphold *enganensis* as has been pointed out earlier by Junge[3].

I could not examine a single skin of Rensch's *mertensi*, but in the measurements, it closely resembles *religiosa*.

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[2] Stresemann, Erw. Einiges über das Genus *Gracula* und seine Arten; *Nov. Zoöl.*, 19, 1912, p. 312–315.

[3] Junge, G. C. A. On a collection of birds from Engano; *Treubia*, 16, 1938, p. 355–356.

[4] Junge, G. C. A. Fauna Simalurensis—Aves; *Temminckia* I, 1936, p. 65/6.

[5] Finsch, O. Das Genus *Gracula* Linn. und seine Arten, nebst Beschreibung einer neuen Art; *Notes Leyden Museum*, 21, 1899/1900, p. 1.

Eggs of the Great Sand Plover, *Charadrius leschenaultii* Lesson, from Somaliland

by C. J. O. Harrison

Received 5th February, 1963

When the collection of eggs presented to the British Museum (Natural History) by R. E. Drake-Brockman was incorporated with the systematic collection, it was found that some clutches had only the vernacular name of the bird with them. One such clutch collected at Berbera, Somalia, on 9th March 1913, (B.M. No. 1946.7.30) had the name 'Dotterel'. On the basis of the size and appearance of the eggs it was possible to eliminate most of the charadriine plovers breeding in the area as species that could have produced them. Captain C. R. S. Pitman suggested that these might be the eggs of the Great Sand Plover, *Charadrius leschenaultii.*

The eggs measure 37.4 x 25.1, 35.8 x 26.5, 36.6 x 25 mm. They bear a close resemblance to some clutches of *C. hiaticula*. Two eggs are pyriform, while the third is a little more ovate. They are a pale buffish-stone in ground colour, with a faint greenish tinge in some parts. They are marked with fairly profuse blackish spots and specks, very variable in size, the larger markings tending to be drawn out into lines, streaks and comma-shaped marks. The underlying markings, in various shades of pale mauve and grey, are fewer than the superficial ones. There is a tendency for the markings to be concentrated in a zone around the larger end. This is most marked in the atypically-shaped egg, in which the pointed third of the shell is mostly unmarked, and is less apparent in the other two eggs.

Eggs from the breeding range of the species in Asia have been described by Grote (1924–5). The description tallies closely with that of the clutch taken by Drake-Brockman. The Asiatic eggs were, however, of a larger size, measurements being: 38 x 29, 37.2 x 28.4, 38 x 28.8, 35.2 x 29.3, 40.3 x 29.8, 38 x 26.5, 38.2 x 26.6 mm. The size difference is relatively slight (about 2 mm. on each dimension) and this might be explained by the fact that the birds suspected of breeding in the Red Sea area are smaller than the typical Asiatic birds.

The normal breeding range of *C. leschenaultii* is across the Kirghiz region and Turkestan, and around the Caspian Sea, coming no nearer to the Red Sea than northern Iran. Von Heuglin (Archer & Godman 1937) suspected that it might breed by the Red Sea, and Nicholl (Meinertzhagen 1930) had suggested that it bred on the Egyptian Red Sea coast. Although birds which appeared too young to have migrated from Asiatic breeding grounds were noted by a number of writers, the only breeding record was a sighting by Archer (*l.c.*) of a downy chick with adult birds at Saad Din Island, Somalia, on 15th July (year not stated). In the absence of other possible species one can reasonably suspect that the eggs collected by Drake-Brockman were those of a local breeding population of *C. leschenaultii*. The date at which they were taken is early in the year, but the Kentish Plover, *Charadrius alexandrinus*, was also breeding at this period.

N.B. I am grateful to Dr. C. Vaurie for the imformation that, in examining recent Russian literature of the Charadriiformes, he finds that doubt has been thrown on the authenticity of the Asiatic eggs with which the clutch described here has been compared. In these circumstances it is possible that no genuine material is available for comparison and it would be unwise to place too much reliance on this earlier description.

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A note on the habits of *Mayrornis schistaceus* Mayr (Muscicapidae) of the South-West Pacific

by SHANE A. PARKER

Received 19th July, 1963

The S.W. Pacific genus *Mayrornis* Wetmore comprises three small, predominantly slate-grey monarchine flycatchers: *lessoni* (Gray), (Fijian group), *versicolor* Mayr (Ongea Levu, Fiji) and *schistaceus* Mayr (Vanikoro, Santa Cruz group). Detailed descriptions of the three species will be found in Mayr (1933, pp. 17–20).

Little is known of this genus apart from skins. E. Layard (1876, pp. 144–5) described a nest and eggs of *lessoni* collected at Ngila on Taviuni, on 23rd July 1875. The nest was composed entirely of rootlets and thickly covered with the yellow cocoons of a common large spider. The nest site was not mentioned. The two eggs, which are now in the British Museum of Natural History (B.M. No. 1901. 12. 5. 212–3) were redescribed by Oates (1903. p. 267); they are fairly glossy and have a creamy white ground with spots and speckles of purplish-brown and lilac-grey forming a zone or cap at the large end and one or two speckles elsewhere on the surface. Measurements in mm. 18.35 x 14, 18.5 x 14.4. Measurements of the nest as given by Layard (changed here to mm.) are: external diam. 68, internal diam. 45, ext. depth 89, int. depth 45. Nehrkorn (1910, p. 186) stated eggs of *lessoni* to be white with dark brown spots in a close and sharply demarcated zone, and to measure 18–19 x 13.5 mm.

Mayr (1945) records *lessoni* as being a bird of the substage in lowland and mountain forest, whose habits are apparently similar to those of *Monarcha*, but which sometimes spreads the tail like a fan. The species has a rasping alarm note. No data on habits are given for *M. versicolor*, and the habits of *M. schistaceus* are said to be unknown.

Observations

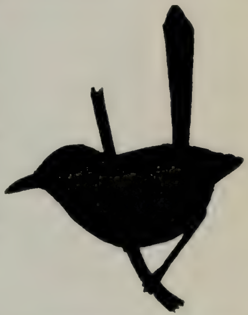
The following notes on *M. schistaceus* are based on observations made by C. J. Hadley, a forestry officer, on Vanikoro in 1955. His field notes and a nest and photograph of the species are deposited at the B.M. (N.H.).

This species, whose common name is Slaty Flycatcher, is often met with in the forest. Its total length is 6 in. It is slate-grey all over, slightly paler towards the crissum. The tail, which is black, is held vertically, like a Wren's, and often spread *Rhipidura*-fashion to reveal the whitish tips to some of the rectrices. The beak is fairly long. The bird is silent except for a call 'chrrr' and a plaintive 't'lyoo' at the nest. Its mode of feeding is to spiral up around a small tree, hopping from branch to branch and then flying to the next tree. One individual was seen to extract something, probably a small insect, from the bark. The social relationship between the Slaty Flycatcher and the Rufous-fronted Fantail (*Rhipidura rufifrons*), about the commonest small bird on Vanikoro, appears to be very close, as Hadley often observed individuals or small groups of the former closely followed by one or more of the latter, "exactly like a male following a female". A nest was found on 3rd June, in secondary forest, still being built. It was 6ft. above the ground in a large-leaved shrub. The nest is now in the B.M. (N.H.) (B.M. No. N.85. 1). It is a flimsy cup built into a three-pronged fork of the main stem. The basal half of the fork is incorporated into the nest, but the three branches emerge about half way up through the nest wall and are in contact with the nest externally as far as the rim. The body of the nest comprises dry vegetable fibre and thin herbaceous stems and leaf blades. The cup is lined with long, dark animal hairs (wild pig?); the outside is covered with a quantity of moss (*Neckeropsis lepineana* and *Floribundaria floribunda*), and decorated with white petal-like pieces of fungus skin. Measurements in mm.: ext. diam. 71, int. diam. 48, ext. depth 61, int. depth 35. Both birds were seen going to the nest with lining for the interior and would put this in place with the beak, then get down in the nest to mould the inside with the body. They would then abruptly leave the nest, plunging over the side in contrast to their more hesitant approach, possibly due to the presence of an observer. On 8th June there was no egg. On 10th June one of the birds was sitting and the nest contained one egg, which was about $\frac{3}{4}$ in. long and had a cream ground tinged with pink, with fine, dense red-brown markings at the large end. From 11th to 29th June the parents took turns to incubate. No observation was made on 30th June, but on 1st July the egg had hatched. On 13th July there was "No chick, no parents, no nothing. Perhaps some disaster happened. There are quite a few tree snakes here". Another nest was found being built on 20th September. It was about 6ft. up in primary forest. This nest, which was accidentally hacked to the ground during track-cutting operations, was more heavily decorated with the white fungus skin than the first.

Discussion

The feeding behaviour of *Mayrornis schistaceus* is typical of most of the monarchine genera. Although feeding-party associations amongst small birds are common, one would expect more species and individuals to be involved than Hadley mentions, and it is more likely that in this case the stimulus which causes the fantail to follow the flycatcher is the latter's behavioural, and to a lesser extent morphological, resemblance to a young *Rhipidura*. The role of *schistaceus* in this relationship appears to be a purely passive one. The well-documented case of Dunlins (*Calidris alpina*) following Golden plovers (*Pluvialis apricaria*) around like shadows on the breeding grounds is reminiscent of this situation.

It is the tail-posture (see sketch) which is of particular interest, insofar as it is not typically monarchine. The Hawaiian monarchine genus *Chasiempis* is another recorded as carrying the tail upright. While searching for food amongst the underbrush and foliage, members of this genus characteristically droop and quiver the wings and erect the fanned tail almost vertically over the back (Perkins 1903, pp. 379–80; Peterson 1961, p. 327). Some species of *Clytorhynchus*, the shrike-billed monarchs, spread the tail when excited and flick it up and down (Mayr 1945, p. 141). *Mayrornis lessoni*, as has already been mentioned, sometimes spreads the tail like a fan. Of the genus *Trochocercus*, which is closely related to *Terpsiphone*, the species *cyanomelas* and *nitens* habitually fan the tail and droop the wings as they move about searching for food (Chapin 1953). Of the above-mentioned species, *Chasiempis*, *Mayrornis* and most forms of *Clytorhynchus* have white- or pale-tipped rectrices which show to advantage only when the tail is so fanned. The tail-posture of *Mayrornis* is thus not as unusual as it may at first seem when the above examples are also considered.



Characteristic posture of *Mayrornis schistaceus*

Acknowledgement

My thanks are due to Mr. Hadley for allowing his data to be used, to Mr. A. Norkett of the Cryptogamic Herbarium of the British Museum of Natural History for identifying the two mosses, and to Mr. I. C. J. Galbraith and Mr. Derek Goodwin of the Bird Section for reading the manuscript.

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Notes on a White-eyed Pochard x Marbled Teal hybrid

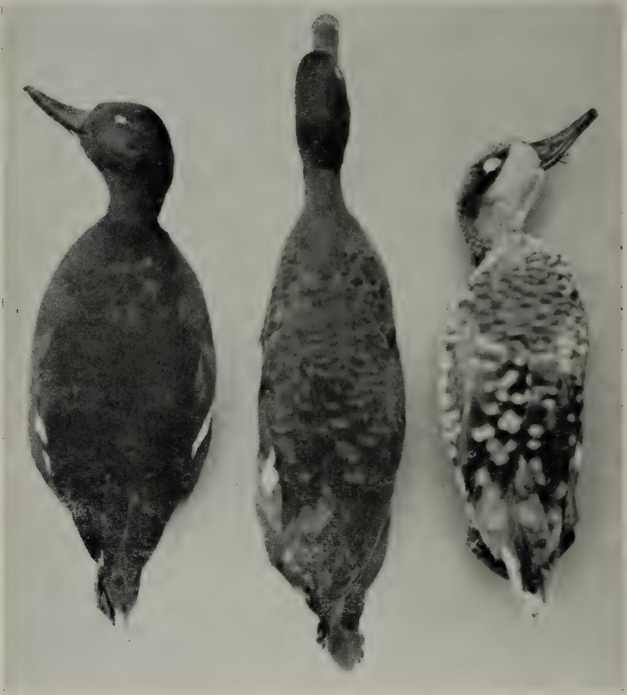
by Bryan L. Sage

Received 16th August, 1963

So far as I have been able to ascertain only one intergeneric cross involving the Marbled Teal (*Marmaronetta angustirostris* Menetries) has ever been recorded, and that refers to a captive cross with the White-eyed

Pochard (*Aythya nyroca* [Guldenstadt]). The hybrid resulting from this cross has not previously been fully described or illustrated.

The specimen forming the subject of this paper is now in the Rothschild collection at the American Museum of Natural History in New York, registered number AMNH 734552. This specimen was exhibited by Lord Rothschild to the British Ornithologists' Club on 8th May, 1929 (see *Bull. Brit. Orn. Cl.* 49: 96), and is clearly the one mentioned by Seth-Smith (1911) and Page (1914). This hybrid was received by the Zoological Society of London on 20th March, 1911, and died on 22nd February, 1912. Although the identity of the male parent has not apparently been recorded, the characters suggest that it was the White-eyed Pochard.



White-eyed Pochard x Marbled Teal (centre) with males of the parental species.

DESCRIPTION

White-eyed Pochard x Marbled Teal, adult male.

This hybrid, in colour, is a diluted version of the male White-eyed Pochard or Ferruginous Duck, with the rich reddish-chestnut of that species replaced by deep ginger. The back and mantle are dark brownish-ginger, the feathers having broad paler tips so that the pattern is similar to that of the Marbled Teal. The forehead, crown, and nape are almost as richly coloured as in the White-eyed Pochard, but each feather has a sub-terminal blackish mark resulting in a speckled effect. The area around and posterior to the eye is blackish to dark brown. The general facial colour is richer than in the female White-eyed Pochard, but nowhere near as chestnut as in the male. The chin and foreneck of the hybrid are mottled whitish, as is often the case with females of the White-eye in summer plumage and in both sexes in juvenile plumage; a white chin spot is also present in the hybrid. The underparts shade from pale ginger on the breast to very pale coffee-white on the abdomen; the under tail-coverts are whitish suffused with ginger. Primaries brownish-grey, secondaries whitish shading to pale brownish terminally.

COMPARATIVE MEASUREMENTS

Measurements in millimetres of the hybrid and males of the parental species

	White-eyed Pochard	Hybrid	Marbled Teal
Wing	178–193*	200	205–215*
Culmen	40–43*	46	43–45*
Depth at nostrils	15–18	18	17–18.5
Width at nostrils	20–21	19.5	16–17.5
Maximum width	22–23	21	16–17

Measurements marked * are taken from Delacour (1959), other measurements made by the author.

DISCUSSION

A study of the morphology of the hybrid reveals no characters that might be considered of evolutionary significance. In colour it is a dilute version of *Aythya nyroca*, while the basic plumage pattern is that of *Marmaronetta angustirostris*. It is of interest to note the persistence in the hybrid of the dark area round and behind the eye characteristic of the Marbled Teal, and the occurrence of the white chin spot normally found in both sexes of the White-eyed Pochard. As can be seen the measurements of the hybrid are all intermediate between those of the parental species, the sole exception being the culmen which is fractionally longer than in either of them.

Despite the fact that the breeding range of the Marbled Teal and the White-eyed Pochard are sympatric to a certain extent, and that both species are somewhat similar in their habitat preference, there is no record of this inter-generic cross occurring under natural conditions. The taxonomic position of the Marbled Teal has been discussed by Johnsgard (1961) who concluded, from several aspects of its behaviour and the tracheal anatomy, that its affinities were with the pochards (Aythyini) and that it should not be placed in the genus *Anas*. The pre-copulatory behaviour of the Marbled Teal suggests that successful copulation is more likely to occur with one of the pochards, rather than with any species of *Anas*. In this respect it is significant that the extensive literature of hybrid ducks reared in captivity contains no record of a cross between *Marmaronetta* and *Anas*. As Johnsgard has pointed out, the very different tracheal structures of *Anas* and the *Netta-Aythya* group are bridged by the intermediate structure found in the Marbled Teal.

ACKNOWLEDGEMENTS

I am most grateful to Dr. Dean Amadon of the American Museum of Natural History for arranging the loan of the hybrid from the Rothschild

collection, and to Dr. G. V. T. Matthews of the Wildfowl Trust for the loan of study skins of the Marbled Teal and White-eyed Pochard.

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Systematic notes on the Cattle Egret (*Bubulcus ibis*)

by C. Vaurie

Received 2nd August, 1963

The spectacular expansion of the Cattle Egret to the New World has received much attention but little has been paid to its geographical variation.

Two subspecies with a very wide distribution can be easily recognized (nominate *ibis* Linnaeus, 1758, type locality, Egypt, and *coromandus* Boddaert, 1783, type locality, Coromandel coast), with the possible addition of a local but doubtful form (*seychellarum* Salomonsen, 1934) known only from the Seychelles in the Indian Ocean. Nominate *ibis* breeds from the southern part of the Iberian Peninsula east to the Caspian districts of northern Iran and neighbouring Transcaspia, and south through Arabia and Africa, including Madagascar and the Mascarenes, to Cape Province; *coromandus* breeds from eastern Baluchistan and India east to eastern China and southern Japan, and south to the Sundas, Celebes, and Moluccas. Nominate *ibis* has expanded to both North and South America since the beginning of the twentieth century and recently also north to southern France and the delta of the Volga; *coromandus*, which had been widely introduced in Australia, is believed to have also reached the north of this sub-continent unaided.

The lengths of the wing and tail are similar in the two subspecies, but the tarsus of *coromandus* averages longer, its bill slightly longer and thicker, and, as a rule, its tibia is not feathered quite so far down as in nominate *ibis*. The measurements of twenty males and twenty females of each subspecies are as follows:

nominate *ibis*

Wing; males, 241–266 (253), females, 240–258 (247.6)
Tail; males, 79–93 (87.5), females, 74–93 (86)
Bill from skull; males, 61–71 (66.3), females, 60–70 (65.5)
Tarsus; males, 70–85 (77), females, 70–81 (76.1)
Bare tibia (length); males, 19–34 (25.3), females, 16–38 (29)

coromandus

Wing; males, 243–260 (253.8), females, 230–256 (246.4)
Tail; males, 76–98 (85.6), females, 76–92 (83.7)
Bill; males, 66–77 (71.1), females, 62–73 (68.5)
Tarsus; males, 80–91 (85), females, 78–87 (82.3)
Bare tibia; males, 27–52 (38), females, 23–52 (38.6)

The two birds are all white and indistinguishable in colour in the non-breeding plumage, but, in the breeding plumage, the feathers of the head, throat, breast, and mantle are rusty-buff, or ''golden,'' in *coromandus*, as against pinkish-cinnamon in nominate *ibis*. In the latter, the cheeks and throat remain white, but not in *coromandus* where they are rusty-buff also. The pigmented feathers on the head and breast of *coromandus* are also shorter, stiffer, and a little harsher in texture than they are in nominate *ibis*.

Seychellarum is known only from three specimens that I have examined. Salomonsen (1934) states that the two specimens that he saw, and which are in the collection of the British Museum, are white on the throat as in nominate *ibis*, but ''golden'' on the crown, back, and breast as in *coromandus*. I find that these two birds are somewhat more ''golden'' than is normal in nominate *ibis*, but they are less ''golden'' than *coromandus* and can be matched in colour by occasional specimens of nominate *ibis* from the Mediterranean and Sudan.

The third specimen from the Seychelles is in non-breeding plumage and entirely white. It is in the collection of the Muséum National d'Histoire Naturelle in Paris and was kindly sent to me by Dr. Jean Dorst who took the trouble to have it unmounted and prepared as a skin. It was not seen by Salomonsen, who, however, was informed by Professor Berlioz that it was white and had a short wing.

The three birds from the Seychelles have a shorter wing than any specimen of nominate *ibis* that I have measured (their wing length measures 238, 238 in two males and 235 in one female), but Benson (1960), who has measured more birds from Africa than I have, reports that some are as small or smaller than the three from the Seychelles. He states that the wing measures 228–266 (244.6) in fifty from ''Eastern Africa (Sudan and Abyssinia south to Zambesi)'' and 230–257 (242.8) in twenty six from ''Southern Africa (south of Zambesi)''. The specimens that I had measured had been collected in southern Europe, or north of the equator in Africa, and it is probable that size declines clinally from north to south in Africa.

In short, the validity of *seychellarum* requires confirmation and, until more material becomes available, it seems best to synonymize *seychellarum* with nominate *ibis*.

The other measurements of the three birds from the Seychelles are:— Tail; males, 83, 84, female 86: bill; males, 65 (tip broken), 65, female, 65; tarsus; males, 78, 78, female, 77: bare tibia; males, 30, 40, female, 30.

Clancey (1959) has proposed that the birds of the Ethiopian region, including Madagascar and the islands of the western Indian Ocean, should be separated from nominate *ibis* and called *ruficrista* Bonaparte, 1855, on the ground that the colour of their soft parts does not change during the breeding season as it does in the populations of nominate *ibis* from Egypt and the southern Palearctic region. He suggests also that the birds which have colonized the New World may belong to *ruficrista*. The colour does change, however, for a short period in the birds which breed in America, and Benson (1960) has shown that *ruficrista* is not valid, as a change of colour happens also in the birds breeding in the Ethiopian region and islands of the Indian Ocean.

The very broad gap in distribution which separates nominate *ibis* from *coromandus* in the Iranian region remains unexplained and is a most curious one when we consider that many parts of this region provide a suitable habitat for a species which has demonstrated that it is a great colonizer. I believe that it probably represents an ancient separation, as modern-day nominate *ibis* seems to have expanded from Africa and *coromandus* from south eastern Asia.

I would like to express my appreciation to the authorities of the British and Paris museums for lending me specimens and for their hospitality, and to Mr. E. Eisenmann for commenting on this paper.

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Pirenestes ostrinus and some other species in Mwinilunga, Northern Rhodesia

by C. W. Benson

Received 10th August, 1963

During a visit to Salujinga, in the north of the Mwinilunga District, at 10° 58′ S., 24° 07′ E., from 17th to 23rd March, 1963, when I was accompanied by my friend Mr. G. Bell-Cross, we were fortunate enough to find two nests of *Pirenestes ostrinus frommi* Kothe. On 18th March a male was disturbed from a nest in rich *Brachystegia* woodland, 20 yards from the edge of riparian evergreen forest (''mushitu''). It was built into the top of an 8ft. high bush of a *Syzygium* sp. It contained four eggs, incubation of which was about 50% complete. Two of them were unfortunately broken. The other two are described by Capt. C. R. S. Pitman as white, smooth, without gloss, size 17.4 x 14.1, 18.1 x 14.1 mm. The second nest, found on 23rd March, was inside mushitu, about 2ft. from the top of an unidentified 8ft. high sapling. The male parent was collected, with four feathered nestlings.

Both nests are typical estrildine-like, rather flimsy, structures, dome-shaped with entrance at the side. Approximate external dimensions (in mm.) are:— length 210, width 140, height 120, width of entrance 30. The first was made mainly of leaves of a wild ginger *Aframomum* sp., with some admixture of the leaves of a fern *Pteridium aquilinum* Kuhn, and lined with the grasses *Loudetia ?simplex* (Nees) Hubbard and *Panicum* sp. In the second, in which sanitation was poor, both the entrance and the bottom of the interior being heavily fouled with the nestlings' faeces, *P. aquilinum* predominated over *Aframomum* sp., while the lining was entirely of *Panicum* sp. The materials composing these nests support the conclusion to be drawn from their respective sites, that *Pirenestes ostrinus* is by no means confined to mushitu. Indeed all the species represented in these materials only occur outside mushitu.

Two further adults of *P. ostrinus* were collected on the same visit to Mwinilunga, by trapping with mist-nets set inside mushitu. All three had their crops crammed with unbroken hard white seeds of diameter about 2 mm. Those of one of the specimens were sent to the Federal Herbarium, Salisbury, and examined by R. B. Drummond. There were no fewer than

48 of these seeds, which he described as of an undescribed species of *Scleria*, a tall sedge growing in mushitu (that seeds of *Scleria* sedges were one common source of the food in the Congo was predicted by Chapin, 1954: 498). Mixed with the seeds were the fragments of the bodies and legs of 14 miscellaneous small spiders (Araneae). The crop-contents of two of the nestlings consisted of finely macerated plant material very similar to broken down seeds of the *Scleria* sp., and may have been regurgitated by a parent. There were also a few fragments of a hard material, purplish in colour, apparently parts of a seed-coat, but not of *Scleria*.

Measurements in mm. of the three adults and four juveniles are as follows:—

	Wing	Tail	Width of lower mandible at base
♂	65	55	13
♂	67	53	13
♀	66	54	15
Juv	48	17	10.5
,,	50	16	10.5
,,	49	20	—
,,	51	23	—

Of 14 adult or nearly adult specimens collected at Salujinga in April and August/September, 1962, by trapping with mist-nets in mushitu, 4♂♂ have wing 64–69, width of lower mandible 13.5–17.5, 10♀♀ wing 64–68, width of lower mandible 12–16 mm. For measurements of each individual specimen, see Benson & Irwin (in press), and of other Northern Rhodesian specimens, Benson (1960). The heads of the last two juveniles tabled above were badly damaged at the time of collecting, so that it was impossible to take the third measurement. They have been preserved in spirit, and their mouths still show three pale yellow fleshy balls, each of diameter about 1 mm., on each side of the gape. At the time of collecting it was also noticed that just inside the mouth, immediately adjacent to these balls, was a contrasting area of black, while the interior of the mouth as a whole was yellow, with a black spot above the base of the tongue and another on each side of it. The foregoing agrees fairly well with the notes by Chapin (1954) on the mouths of nestlings. An adult female collected on 22nd March had the anterior of the inside of the mouth pale grey, the posterior darker, and lacked any of the contrasting pattern of the nestlings, which must be of value in guiding the parent when feeding the young in the darkness of a closed nest. Whereas adults of both sexes had the widened parts of the lids above and below the eye pale blue, the eyelids of the nestlings were merely an obscure dull greenish. This again agrees with the notes by Chapin (1954). In colour of plumage the nestlings are much the same brown colour as adult females, but with red confined to the upper tail-coverts, and much paler.

The opportunity is taken to also mention the collecting of specimens of *Sarothrura pulchra centralis* Neumann, *Alcedo leucogaster leopoldi* (Dubois), *Halcyon m. malimbica* (Shaw) and *Ploceus superciliosus* (Shelley) at Salujinga. Details are given by Benson & Irwin (*loc. cit.*). The *Alcedo* was a considerable surprise, though the other three were already known from Kasaji, in the Katanga.

I am especially indebted to Mr. A. Angus, of the Agricultural Research Station, Mt. Makulu, Northern Rhodesia, for his assistance in the identification of the species of plants mentioned. I must also thank Mr. C. M. N. White for reading through this note in draft. All the specimens of *Pirenestes* are in the National Museum, Bulawayo, except the eggs, which are in the British Museum.

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The nesting of the Black-bellied Seed-cracker, *Pirenestes ostrinus* in Uganda and notes on its habitat and classification

by Charles R. S. Pitman

Received 12th August, 1963

The classification of the races of *Pirenestes ostrinus* (Vieillot) is based on the black bodies of the ♂♂—they are brown in the ♂♂ of *Pirenestes minor* Shelley, size of birds and dimensions of bill, the races being generally referred to as large-billed or small-billed, but there are many intermediates. There must be a significant relationship between bill size (and its development) and the type and hardness of the seed on which these birds feed. With reference to bill size the van Somerens (1: p. 100) draw attention to the great variation in bill measurements of the Grosbeak Weaver, *Amblyospiza* from one locality which, however, an examination of some two hundred examples from several widespread regions does not bear out. Of taxonomic value is the mouth pattern of nestling *Pirenestes*.

Chapin (2: pp. 490–498) discusses in considerable detail the distribution of typical *Pirenestes ostrinus ostrinus* (Vieillot) and its races *P. o. rothschildi* Neumann and *P. o. maximus* Chapin, as well as briefly referring to *Pirenestes minor frommi* Kothe, which additional material (*vide* Benson *ibid* and 6: p. 110) indicates is a race of *P. ostrinus*. There seems to be some confusion over the identification of races of similar appearance in which differences are to a great extent based on mandible width. Material to enable satisfactory conclusions is still scanty and until long series are available from one locality, the problem is likely to remain unsolved. Pairs have been collected in which the mandible width of the one is widely divergent from that of the other (but see Chapin). Chapin (p. 493) is probably right in his contention that "The present confusing conditions are best explained, I believe, by changes in the vegetation due to the recent activity of man, which has brought into contact large and small billed forms," and he advocates "study the nature of vegetational cover in each spot where *Pirenestes* is taken". Further (p. 498) "Since 1914 the clearings about Stanleyville have expanded enormously, and this should be a most propitious spot for a study of the relations between the large and small forms of *Pirenestes*" (the large form being *P. o. maximus* and the small, *P. o. rothschildi*).

Three races of *Pirenestes ostrinus*—the nominate, *maximus* and *rothschildi*—are recorded from Uganda, all of which I possibly came across, and Chapin (p. 491) further refers to a rather large race with comparatively small bill, *P. o. centralis* Neumann, from the Sese Islands of Lake Victoria. This, however, Praed and Grant (3: p. 1053) place in the synonymy of *Pirenestes rothschildi;* and these authorities recognise no races of P. *ostrinus* and regard it and *P. rothschildi*, *P. maximus* and *P. frommi* each as a separate species, also (3: p. 990) "The relationship of the birds of this group is obscure, and whether they are species or races is still a matter of some controversy."

Bannerman (4: p. 283) quoting Chapin (*in litt.*) "There certainly are not two black-bodied species, for between *rothschildi* and *maximus* I believe I have seen every intermediate size" . . . "What I contend is that the very large-billed birds ('*maximus*') are usually found around the outer margins of the range, living in patches of woods in savanna districts, while the very small-billed ones ('*rothschildi*') live in heavy forests, mainly in the scrubby growth of clearings" . . . "Moreover, the birds of middle size were found along the edge of the forest belt" . . . "These size groups (*ostrinus*) are not races in the usual sense. Their ranges are hard to delimit, and do overlap". . . "This much is sure: *ostrinus* may be regarded as a species with unusual variations in size. The variation is largely geographic." Chapin was for many years familiar with the regions and habitats of which he writes. I shall later be referring to the effect man's activities have had on the distribution of *P. ostrinus* at Entebbe, Uganda.

The van Somerens (1: p. 100) collected a breeding ♂ in July, near an overgrown stream by the forest edge, where it had been seen on several occasions, at Bundibugyo (in Bwamba), immediately west of the northern end of Ruwenzori, but refer to it binomially as *P. ostrinus* "because we are not satisfied that the grouping advocated by recent authors is correct". The width of mandible at base is 15 mm. which would bring it within the size range of Chapin's *P. o. ostrinus*. I have twice observed this skulking species almost at ground level in this region, consisting mainly of low-lying swampy forest, with gallery forest, but latterly there has been much clearing; on each occasion it immediately disappeared into dense vegetation near water. Chapin (p. 493) refers to a ♀ of *P. o. rothschildi* from Mbale, in Uganda. This locality needs explanation, for it is *not* the well-known administrative centre to the west of Mount Elgon, but is a small settlement some 17 miles south-east of Kampala on the highway to Masaka and which—to make confusion worse confounded—has been re-named Mpigi, the designation to be found on present-day maps. Here there is swampy forest connected with the lake-shore forests to the south, and it is a typical haunt of what I believe to be nominate *P. o. ostrinus*. Chapin (p. 497) also refers to a specimen of *P. o. maximus* collected by van Someren at Lugalambo, a savanna locality with forest patches to the north of Mbarara, in Southern Ankole (S. W. Uganda); and (p. 495) to a ♂ and ♀ *P. o. ostrinus* from Bwamba Forest, with mandible width respectively 15 mm. and 17 mm.

Jackson (5: p. 1489) records examples of *P. o. ostrinus* (width of the lower mandible at widest point about 15 mm.) from Mpumu, Kyetema and Mabira—all forest areas in Kyagwe (S. E. Buganda), just north of Lake Victoria, and from Bugoma—a forest region in Western Uganda, on the scarp, above Lake Albert. A nest found at Mpumu will be discussed later. Jackson (p. 1490) refers to the example of *P. o. maximus* (mandible width 17 mm.—20 mm.) from Lugalambo, a specimen of *P. o. centralis* (mandible width 13 mm.) collected in 1890 by Stuhlmann on the Sese Islands, and another from Entebbe (referred to this race by Chapin).

In the Coryndon Museum, at Nairobi, there is a ♂ *P. ostrinus* (width of base of lower mandible 14 mm.) from near Kampala, but the specific locality is not recorded. It could have been collected in any of the patches of forest which remain not far distant around the city, despite the intensive clearing which has for long been taking place. I never managed to collect any specimens of *Pirenestes* in Uganda; I found it far too elusive, though I observed it occasionally—in patchy, thick, bushy cover along the Lubilia river in open country on the Congo border (south of Ruwenzori) where it was far too active to be collected; in dense, tangled cover along a swampy stream (6,500 feet), in open highland country and tree-heath (*Erica arborea*) zone, at Chabahinga (immediately west of Lake Bunyonyi) in south-west Kigezi (S. W. Uganda), where, too, it was adept at avoiding collection; in the lake-shore forests, near swamp, on half-a-dozen islands and along the mainland coast of Lake Victoria; in swampy regions with thick cover in the previously mentioned Mabira Forest; specifically in several lake-shore forests—some swampy—near Entebbe; and not uncommonly in the Botanic Gardens—the site of former lake-shore forest—at Entebbe. This last mentioned locality consists of several acres of reclaimed forest tidily laid out and includes the remnants of experimental Para rubber (with pepper), oil palm (*Elaeis guineensis*) and cocoa plantations, a tiny relic of primeval forest (well patronized by bird life), and an extensive area of close-cut, lawn-like grass slopes—the whole right on the shore of a sheltered bay in Lake Victoria.

A new highway which was constructed just north of the Botanic Gardens entailed the destruction of a considerable area of swampy lake-shore forest in which the Raphia palm, *Raphia monbuttorum*, was predominant, and some years later, in 1946, in sites which obviously had been previously used, two nests of *Pirenestes ostrinus*, with fresh eggs, were found respectively on 5th (c/5) and 10th (c/4) May in the Botanic Gardens. On each of these nests the ♂ was sitting, and as, when flushed, it did not immediately disappear into a nearby thicket it was closely observed and it could be clearly seen to have a relatively large bill. Each nest was a large, rather untidy globe of dead leaves and dry grass, lined with fine dry *Panicum* grass, and with side entrance, and not unlike the larger and untidier nest of the Grey-headed Negro Finch, *Nigrita canicapilla schistacea* Sharpe. The c/4 was about eight feet above the ground on the rib of a Raphia palm in the patch of relic forest and the c/5 some seven feet above ground level on top of an intensely prickly cactus in a stony, succulent garden, aloes, etc., at the foot of a lofty forest giant, with open lawns around it. The cactus site, which was only accessible, with difficulty, by standing on a box or step-ladder, was still in use when I finally left Entebbe in September 1950 and was then several feet higher: the Raphia palm site was used for a couple more years and then abandoned. It was probably subject to too much disturbance. I was absent from Uganda during the first half of 1947, but on 10th March 1948 I collected c/4 (incubated several days) from the 'cactus' nest, which was then ten feet above ground level: the nest was a bulky, globular affair of dry leaves, dry grass, etc., lined with fine dry *Panicum*, dry fern, etc., with side entrance: the brooding ♀ was put off the nest and twice was viewed at very close quarters. On 30th March, the same year, the ♂ was twice flushed from the nest when the cactus stem was tapped and he was presumed to be incubating. Subsequently the nest was left undisturbed except an occasional tap to ascertain whether a bird was sitting—precise details were not kept.

On 30th March 1948 an inaccessible nest at least 12 feet high in a tree-fern, *Cyathea dregei* was found in the relic forest patch, the ♂ was sitting and was put off twice: he was again flushed the next day. There were several tree-ferns, some up to 15 feet high, in this patch which were the resort of breeding *Pirenestes* during the next two years.

On 8th September 1948, c/4 (incubated a few days) was found ten feet above the ground in the centre of a leaf-tuft of a screw-pine (*Pandanus*) growing on an open, lawn-like slope; the ♂ was incubating. The bulky, globular nest measured approximately overall 12 x 10 x 9 inches; it had a foundation of dead leaves, bark strips and broad dead grass blades, and was mainly constructed of long, dry creepers, grass stems, dry ferns, dead leaves, etc., lined with bast, dry bamboo leaf and bark strips, and fluffy green flowering *Panicum* heads. This nesting site which must have been used before was soon abandoned, as it was probably too accessible and prone to disturbance. On 12th September the same year a ♀ was sitting in a nest at the top of a slender bare-stemmed Dracaena, *Dracaena fragrans*, with tufted top, fully 20 feet above the ground, growing in an old Para rubber plantation. Without causing undue disturbance it was possible to confirm that a bird was sitting, more usually the ♂, up to 20th September. Owing to frequent absences from Entebbe, on tour, it was not possible to make a more thorough investigation of the breeding habits of the local *Pirenestes*, though admittedly many opportunities were missed. It was particularly noticeable that when *Pirenestes* took refuge in—for it—the abnormally open conditions of the Botanic Gardens it selected preferably for its nest sites such as Raphia-leaf rib, Dracaena and tree-fern which would also occur in its natural habitat, as well as in a diabolically protected cactus (perhaps reminiscent of a prickly-stemmed tree-fern) inaccessible to any predator and in a screw-pine (not unlike a small Dracaena) which soon proved to be unsuitable. In the habitat of this species of *Pirenestes*, large arboreal ornithophagous snakes are common and this bird evidently selects sites which afford the maximum protection from such predators. I was never able to hear any song, but I once saw a nesting pair of *Pirenestes*, together with a number of small birds of several species, noisily mobbing a large (fully six feet) Eastern Jameson's Mamba, *Dendroaspis jamesoni kaimosae* in the Botanic Gardens forest patch; they were uttering an agitated, high-pitched, incessant 'tzee tzee tzee'.

Seth-Smith (4: p. 1489) in April, at Mpumu in Kyagwe, found a nest with three eggs which were white, rather rounded, but not glossy—one egg measures 18 x 14 mm. The ♂ was incubating and was collected: it is the only Uganda example of *Pirenestes ostrinus* in the British Museum (Natural History) collection. The large, untidy-looking nest of coarse grass woven together with the loose ends sticking out and lined with finer grass, was placed on a bare branch overhanging a road and difficult to reach.

According to Bannerman (4: p. 285) Bates found a nest of *ostrinus* in South Cameroon "a large globular mass of dry broad strips of leaves of the Calamus palm, laid or woven together loosely, with an opening at one side and lined with a few fine grass-tops". The three eggs, white without gloss, measured 20 x 14, 19.5 x 14 and 19 x 14 mm. There are two breeding seasons, which coincide with the two rainy seasons, at Entebbe and in the lake-shore region—during the three months March to May and in September–October. When eggs were taken, a repeat clutch was laid soon after; but I had no evidence to suggest that the same pair nested in both breeding seasons in one year. The 'cactus' site was used regularly over a period of five years and mostly the same nest—repaired as necessary—was used, but there was little room for other nests. The same palm rib was resorted to for three years, but a new nest at a different spot on the rib was built on each occasion and also for a repeat clutch. During four years new nests were occupied in one or other of the group of tree-ferns. For two breeding seasons (in September) the same nest at the top of the lofty 20 feet Dracaena was occupied. I collected three sets, each of four eggs, and measured c/5 taken by some schoolboys. These 17 eggs are white and smooth, but not glossy; their measurements average 17.8 x 13.6 mm., and the variation is 16.6–18.4 x 12.7–14.3 mm.

There were at least four breeding pairs of *Pirenestes* in the Botanic Gardens, two during the long rains (March to May) and two in the short rains (September–October).

Nests I examined which had been recently occupied or which were old, were always clean and showed no signs of fouling. I never saw these Seed-crackers feeding and I have no idea on what they fed.

Jackson first knew the Botanic Gardens when there was dense cover along the foreshore and a preponderance of primeval forest and if it was then a haunt of *Pirenestes*—as it might well have been—he certainly never saw it. At the same time that *Pirenestes* appeared, there was also a considerable influx of the handsome little Black-and-White Mannikin, *Lonchura poensis poensis* (Fraser)—evidently seeking a new home—which, too, was unknown to Jackson. It quickly established itself in its new habitat in the Gardens, where it had not previously been observed, and became a common breeding species. It must be mentioned that over a period of some twenty-five years large areas of forest had been steadily and progressively cleared to the north of the Botanic Gardens and it is probable that both *Pirenestes* and *Lonchura* from farther afield had for a while taken refuge in the forest patch which the road making operations eventually destroyed.

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CONTRIBUTORS

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CORRESPONDENCE

Other correspondence should be addressed to the Hon. Secretary, Dr. J. G. Harrison, "Merriewood", St. Botolph's Road, Sevenoaks, Kent.

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